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Appleton Mills Fear Retaliation By South

Dissatisfaction In Nine Southern States of State Tax On Oleomargarine Threatens Discrimination Against Use of Wisconsin Paper — Phoenix To Build $160,000 Box Plant—Mills Support Reservoir Bill—Other News.

APPLETON, WIS., July 31, 1939—Fearing the loss of business from nine Southern states which threaten a boycott of Wisconsin products, a few of the paper manufacturers directly affected are taking a hand in inducing the Wisconsin Legislature to repeal a heavy tax now in effect on Oleomargarine sold within the state.

One manufacturer who has withheld his name said his mill sold approximately 1,000 tons of a special grade of grease-proof paper that is used for lining lard, shortening and Oleomargarine cartons. Only about 25 per cent of this tonnage, or 250 tons, went to the lard field; the remainder went into other products as mentioned. He points out that practically all of the margarine and shortening made is derived from cottonseed oil, and that his tonnage on this item would increase appreciably if these nine southern states do not build up too much opposition to Wisconsin-made products due to this wholly unfair oleomargarine tax.

With Wisconsin as one of the three top states in paper manufacture, the manufacturer says a boycott in the south again Wisconsin paper would be nothing short of a tragedy.

The Marathon Paper Mills Company is mentioned as one that would be heavily affected, because it furnishes a tremendous quantity of cartons for shortening and Oleomargarine.

Phoenix To Build Paper Box Plant

Work has been started by the Phoenix Products Company on a new factory on Courtland St., to which the company expects to move in December from its present location at 525 E. Chicago St.

Estimated cost of the plant and grounds is $160,000. The building will be of one-story construction, of brick and steel, and will have a band of glass running completely around it. It will contain about 60,000 square feet of floor space, and will have offices on a mezzanine floor.

The business was started in 1892 by George Wordingham, and manufactures paper and cardboard containers principally for laundries, as well as wood and wire coathangers. Most of the machinery was designed by Mr. Wordingham. The plant now occupied was built in 1915, and two floors were added in 1917. Maurice Wordingham, son of the founder, is president, and G. B. Larson is secretary-treasurer. The plant has 70 employees.

Paper Men Support Reservoir Bill

Plenty of support came forth from city officials, paper mill and utility executives, labor unions, riparians and others at a hearing before the Wisconsin Assembly last week on the bill which has already passed the Senate chartering the Wolf River Reservoir Company project to strengthen the flow of the Fox and Wolf Rivers. The only opposition was offered by representatives of the Wisconsin Conservation Commission, claiming a detrimental effect on fish life in the Wolf River. Arguments were made the more effective by the present condition of the Fox River; because of the receding flow on account of drought, and the presence of such heavy quantities of algae the water is not suitable for finer grades of paper.

T. E. Orbison, paper mill engineer of Appleton, testified the mills would see particularly acute conditions during August. He said the level of Lake Winnebago, the storage fed by the Fox River, and the Wolf as a tributary, is receding at the rate of half an inch a day. He pointed to the success enjoyed in a storage system by mills along the Wisconsin River, through the Wisconsin Valley Improvement Company.

L. F. Warrick, state sanitary engineer, testified at the hearing at the request of W. F. Thiele, engineer of the Consolidated Water Power and Paper Company, whose Interlake Pulp and Paper Company mill is on the Fox River. Mr. Warrick said state agencies concerned with health and water pollution are eager to improve the Fox River. Increasing the low summer flow, he said, will improve the sanitary conditions.

H. F. Weckwerth, superintendent of the municipal electric utility at Kaukauna, Wis., declared the water in the Fox River is so poor the paper mills have spent thousands of dollars to drill deep wells to get water for fine papers. He added that some mills have left the area because of the unsatisfactory water conditions; also that algae in the water this summer are so numerous felts on paper machines are rotting,

(Continued on page 26)

Chicago Looks Ahead for Good Fall Trade

Current Demand In Midwest Area and Fairly Firm Paper Market Indicate Improved Volume of Business In Fall — Paper Sales Up In June — Trade Affected By Trucking Act — Salesmen Play Golf — Other News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., July 31, 1939—A more reassuring tone developed in the Chicago paper market during the past week. Demand showed indications of responding to improved business in the last six months of the year and the market structure, in general, was reported as fairly firm. Waste papers continued as an exception, locally at least, with the market quoted as "weak" and demand not keeping pace with the supplies on hand. Kraft papers continued to show a good demand and there were reported indications of more firmness in the general undertone. Sulphites were steady and Chicago offices reported larger quantities in orders which were considered as a good omen for early fall business. Books and covers showed slightly more activity. Groundwoods were fair with the market steady and newsprints were likewise reflecting some general improvement in the business picture. Specialties were moving at an appreciable pace and those items beginning now to book holiday business reported buyers quite confident of the prospect of trade in the future.

Wholesale Paper Sales Up in June

Wholesale paper trade in this area improved materially in June according to recent figures from the seventh federal reserve district which represents the states of Wisconsin, Michigan, Iowa, Illinois and Indiana. Net sales for June, 1939, increased 25 per cent over the same period a year ago while stocks increased 3.2 per cent. Accounts outstanding were up 6.9 per cent and collections up 11.1 per cent. In the industrial or manufacturing group, the 740 paper and printing firms reporting for the week of June 15 showed 74,034 wage earners with earnings of $2,142,000. The number of wage earners declined 0.7 per cent as compared to May 15, 1939, though earnings increased 0.2 per cent over a like period. The total for the 10 groups in the manufacturing section showed an increase of 0.5 per cent in wage earners and of 3.9 per cent in earnings for the same periods.

Paper Trade Affected by Trucking Act

All paper firms using trucks for transportation purposes in Illinois are now under the new Trucking Act which was signed this week by Governor Henry Horner. Under the new laws all trucks, for hire or otherwise, must have public liability and property damage insurance or owners must prove financial responsibility to pay damages. Every truck must pass twice a year safety tests. Drivers working time is limited to twelve hours at the wheel and fifteen hours on duty in any twenty four. Every truck must bear name and address of owner. Merchant truckers—outside cities (gypsy peddlers) must carry bills of sales covering their cargoes. Common carriers are required to have cargo insurance and bonds covering collections on c.o.d shipments or prove financial responsibility. For hire carriers are required to use bills of lading except within cities or within contiguous cities. Contract carriers, those hauling for certain customers only, file affidavits to show their status rather than file confidence revealing contracts.

Midwest Salesmen Enjoy Golf Outing

Under the direction of Fred Patterson of the Flambeau Paper Company, who pinch hitted for George Craft who was on vacation, the midwest division of the Salesmens Association of the Paper Industry held the third of its summer series of golf outings at the Bob-O-Link Golf Club on Friday, July 21. Forty members and guests participated in the usual luncheon, golf and dinner affair. Prize winners as reported by Mr. Patterson were as follows: low gross, R. C. Johnson, Ward Paper Mills; blind bogey, E. D. Buchanan, Moser Paper Company; low net, 17 and under, Roland Ewens, Millprint Products Corporation, Milwaukee; low net, 18 and over, J. C. Marvin, Brmingham & Prosser; second low net, 17 and under, W. B. Moore, Browne Company; second low net, 18 and over, Hans Christiansen, Allman-Christianson Company, Wilwaukee; low net, first nine, George H. Fay, Mead Sales Company; low net, second nine, W. J. Tilden, Mead Sales Company; low putts, first nine, Nelson Wicks, Blunden Lyon Company; low putts, second nine, Hamilton Voss, Berkshire Papers, Inc., high gross foursome, Phil A. Howard, American Paper Merchant; J. M. Shaughnessey, Graham Paper Company; E. D. Buchanan, Moser Paper Company and James H. Coy, Flambeau Paper Company; low net foursome, W. B. Moore, H. Van Potten, Bradner Smith & Company; A. J. Austin, Moser Paper Company and R. C. Johnson, Ward Paper Mills. Low putt foursome, Hamilton Voss, Nelson Wicks, F. Swatek, Parker, Thomas & Tucker and H. Brower of Wytek Sales Company.

The next outing will be held at the LaGrange Country Club on Friday, August 25, and a special effort will be made by golf chairman Craft to arouse a lot of interest over an event staged on the home course of Jim Coy and Jack Burruss. Special announcements concerning this event are to be mailed out shortly.

Northern Mills Expert To Address Merchants

Carl Palmen of Cleveland, merchandising counselor for the Northern Paper Mills and a number of other well known concerns, is to be the featured speaker at the Interstate Merchants Council dinner to be held at the Hotel Sherman next Tuesday, August 1. His subject is "Merchandising at its Best". About 1400 retailer guests of the Council are expected to be present both for this meeting and for a series of special buying events to be held throughout the week.

Boston Paper Demand Improves

BOSTON, Mass., July 31, 1939—Reports in the trade here indicate that the volume of paper business in July showed an improvement over that of several previous months.

Financial News of Pulp and Paper Industry

Scott Paper Co. Statement Shows Improved Business — Robert Gair Co. Reports Profit — Increased Net Income For Hinde & Dauch — Consolidated Declares Dividend — Japan's New Paper Mill Begins Operations.

New York Stock Exchange

High, Low and Last for the Week Ending August 2, 1939

	High	Low	Last
A. P. W.	2	2	2
Armstrong Cork Co.	43¼	42½	42⅞
Celotex Corp.	12¾	11¾	12
Celotex Corp., pf.	66	66	66
Certain-Teed Products Corp.	8	7¾	7¾
Certain-Teed Products Corp., pf.	31¼	30⅛	30⅛
Champion Paper & Fibre Co.	20¼	20	20¼
Champion Paper & Fibre Co., Pf.	101	100	100
Congoleum-Nairn Co.	26¾	25¾	26¼
Container Corp. of America	11⅞	11½	11½
Continental-Diamond Fibre Co.	7¼	6⅞	7
Crown-Zellerbach Co.	10⅝	10	10¼
Crown-Zellerbach Co., Pf.	81	80¾	80¾
Flintkote Co.	22¼	19¾	20⅞
Robert Gair	2⅜	2⅜	2½
Robert Gair, pf.	8¼	8¼	8¼
International Paper & Power	10⅛	9¼	10
International Paper & Power, pf.	37¼	34⅜	37
Johns-Manville Corp.	80	74	76½
Johns-Manville Corp., pf.	129½	129½	129½
Kimberly Clark Corp.	29¾	28½	29¼
MacAndrews & Forbes	35	34	35
Masonite Corp.	43½	42½	43
Mead Corp.	8⅜	7⅞	8
Mead Corp., pf.	57	57	57
Paraffine Companies, Inc.	48	48	48
Ruberoid Co.	22¾	22	22¾
Scott Paper Co.	52⅛	52	52⅛
Scott Paper Co., pf.	113⅜	113⅜	113⅜
Sutherland Paper Co.	25½	24¾	25½
Union Bag & Paper Corp.	8⅝	7½	8
U. S. Gypsum Co.	94	87½	87½
U. S. Gypsum Co., pf.	175	174¾	175

New York Curb Exchange

High, Low and Last for the Week Ending August 2, 1939

	High	Low	Last
American Box Board Co.	6½	6⅛	6¼
Great Northern Paper	38¼	38¼	38¼
St. Regis Paper Co.	2⅛	2	2⅛
Taggart Corp.	3¼	3⅛	3⅛

Scott Paper Co. Makes Good Report

The Scott Paper Company, Chester, Pa., in a statement to shareholders issued July 31 by Thomas B. McCabe, president of the company, announced that for the quarter ended July 1, 1939, net earnings for common shares were $438,595, equal to $.70 per share on the 627,240 common shares outstanding at the close of the period. This compares with net earnings of $387,213 or $.62 per share on the same basis for the second quarter of 1938. Sales booked were 21.7 per cent ahead of the second quarter last year.

Net sales shipped for the quarter were $4,562,045, an increase of 13.8 per cent over the same quarter 1938.

For the six months ended July 1, 1939, net earnings for common shares were $727,578 equal to $1.16 per share on 627,240 shares outstanding, compared with $743,627, or $1.18 per share on the same basis for six months ended July 2, 1938. Sales shipped for the period were $8,723,164, an increase of 5.3 per cent over six months last year.

Robert Gair Co. Reports Profit

George E. Dyke, president, has just submitted to stockholders a copy of the consolidated profit and loss statement of Robert Gair Company, Inc. and subsidiary companies for the quarterly and six months period ended on June 30, 1939, which shows a profit from operation, after provision for interest on Income Notes and Income Taxes, for the second quarter, of $5,959.86. In submitting the report Mr. Dyke states that "In accordance with the present policy of disposing of unneeded and non-profit producing assets, during the three months ended June 30, 1939, the company sold the paperboard machine at Madawaska, Maine, the land and remaining buildings at Watertown, N. Y., and wrote off certain worn-out machinery, as a result of which it sustained a capital loss of $153,483.32. In continuation of this policy which the management and board of directors believe to be constructive and beneficial to the company, further losses on the sale of capital assets approximating $100,000 have been sustained during the month of July.

Hinde & Dauch Reports $323,933

The Hinde & Dauch Paper Company and subsidiaries report on six months to June 30: Net profit, $323,933, equal after preferred dividend requirements to 65 cents a share on 360,250 common shares, against $320,940, or 64 cents a common share, last year. Dividends received from an unconsolidated subsidiary, Hinde & Dauch Paper Company of Canada, for the six months this year were $36,186, or $9,267 more than the company's proportionate interest of $26,559 in earnings. In the first half of 1938 dividends received from Hinde & Dauch Paper Company of Canada amounted to $72,371.

Consolidated Paper Pays 25 Cents

At a meeting of the board of directors of the Consolidated Paper Company, Monroe, Mich., A. H. Lockwood was elected treasurer, and J. H. Meloan was elected a director filling the vacancies in these two offices caused by the death of L. W. Newcomer. J. B. Taft and L. J. Maurer were elected vice presidents to fill vacancies caused by the resignations of A. H. Lockwood and J. C. Bulis.

A dividend of 25 cents a share was declared on the common stock payable September 1 to stockholders of record on August 21.

New Paper Mill Starts in Japan

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 2, 1939—The Tung Yang Paper Company, a Japanese enterprise, began operations in Tientsin at the end of April, according to a report from the office of the American Commercial Attache, Shanghai. The mill is reported to have an annual capacity of 20,000 tons.

Scott To Redeem 3¼ Debenture Bonds

CHESTER, Penn., July 31, 1939—The Scott Paper Company plans to redeem $500,000 of its 3¼ debenture bonds at 105 on September 1.

TAPPI Plans for Syracuse Convention

Many of the 1000 or more members and friends of the Technical Association of the Pulp and Paper Industry, who are expected in Syracuse, N. Y., on September 12, 13, 14 for the Fall Convention, will be visiting for the first time one of America's most popular convention cities.

Situated approximately in the geographical center of New York State at the mouth of Onondaga Valley on the shores of Onondaga Lake, and spreading out over six beautiful hills, this city of more than 200,000 has many natural advantages for attracting one of the largest TAPPI attendance ever recorded.

Favorable Location

The location alone is expected to bring hundreds of TAPPI guests. It is overnight from eastern Canadian points, New England, New York, Washington, Philadelphia, Pittsburgh, Detroit, Cleveland, Cincinnati, and but slightly further from the South and Middle West. Syracuse is within 300 miles of one-third of the population of the United States. This fact makes it possible for many mills to send several delegates, and committee members are forecasting a large attendance of junior executives, young engineers, chemists, technicians and laboratory assistants.

THE ADIRONDACK MOUNTAINS TO THE NORTH AND EAST OF SYRACUSE PRESENT 1400 SQUARE MILES OF FOREST, DOTTED WITH MORE LAKES AND PONDS TO THE SQUARE MILE THAN ALMOST ANY OTHER PORTION OF THE GLOBE. IN THIS SECTION IS LOCATED THE MAJORITY OF NEW YORK STATE'S 125 PAPER MILLS.

DOWNTOWN SYRACUSE FROM THE AIR. IN THE CENTER IS THE MAIN STREET—SALINA STREET—RUNNING NORTH AND SOUTH. PARALLEL ON THE RIGHT IS WARREN STREET, WHERE THE TWO MAIN HOTELS—THE SYRACUSE AND THE ONONDAGA—ARE LOCATED.

In addition to the convention headquarters—Hotel Syracuse—with its 600 rooms—each an outside room with private bath—The Onondaga Hotel is located only a block away and has 500 modern, fireproof rooms. Many fine smaller Hotels—The Jefferson-Clinton (140 rooms), The Hilton (110 rooms), the Mizpah (120 rooms), The St. Cloud (120 rooms), The Yates (200 rooms), and the Wood and Truax (50 rooms each) make a total of nearly 2000 good rooms at economical prices.

Other Features of Interest

Other features of interest to those considering a trip to the convention are: the 125 diversified paper mills in New York State, the proximity to the New York World's Fair, the New York State College of Forestry experimental paper-making laboratories and the scenic beauties of New York State's Finger Lakes, Adirondacks and Catskills so easily reached on routes to and from the convention.

On the site now occupied by Syracuse once stood the capitol of the great Iroquois Confederacy. Representatives of the six nations still meet at Syracuse

THE SPACIOUS LOBBY OF HOTEL SYRACUSE, TAPPI CONVENTION HEADQUARTERS, WHERE THE REGISTRATION DESK AND BOOTHS OF EXHIBITORS WILL BE LOCATED.

GRAND BALLROOM OF THE HOTEL SYRACUSE HAS BEEN THE SCENE OF MANY DISTINGUISHED GATHERINGS. HERE WILL BE HELD THE TAPPI FORMAL BANQUETS AND DANCES.

to pass on tribal affairs. The city developed through the discovery of salt by the Indian missionary, Father Simon LeMoyne. Although the salt industry has faded into history, Syracuse is still known throughout the United States and in many parts of the world as "the salt city".

Syracuse University

Crowning one of Syracuse's many hills is Syracuse University, one of the finest educational institutions in the United States with approximately 9000 students and a faculty of 600. Although the regular term will not be in session until the week following the TAPPI Convention, the University buildings and campus will be open to visitors. In the stadium—one of the largest natural ampitheatres in the country—the Syracuse University football squad will be practicing for a season which is expected to bring this team into the national gridiron spotlight.

Mills to Hold Open House

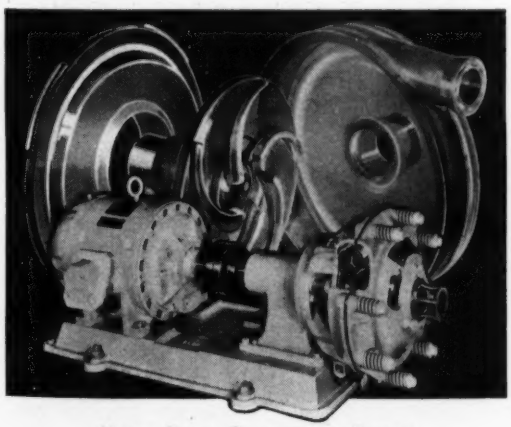
For the benefit of delegates who are planning a leisurely trip to the convention, including stops at mills and industrial plants of special interest, Lyman Beeman, convention committeeman in charge of mill visits, has arranged for a number of these plants and mills to hold "open house" during the week of the convention. The convention committee is preparing a list of these plants and a map of the state showing how each may be reached from the main routes leading into the state. Complete details will be released to all TAPPI members and others interested within the next two weeks.

In view of the large attendance expected, those planning to be at the convention are urged to signify their intentions by writing to convention headquarters, Hotel Syracuse, Syracuse, N. Y., thus assuring a choice of hotel rooms and a share in the attractive entertainment program which is now being arranged.

A Successful Pump of Glass

An entirely new kind of a pump, the Nash Glass Centrifugal has the mechanical advantages of metal, and the chemical advantages of glass.

Where it is desirable to handle chemical or food products under the most sanitary conditions, or where the product handled must remain chemically unchanged, this pump is ideal. Also, pumping of corrosive acids or acid materials in commercial quantities has long been one of the most difficult problems of the chemical engineer. These fluids often quickly destroy metal pipes and pumps, also minute traces of corrosion impurities may completely change chemical reactions, and the resulting product. Laboratory and other equipment of glass has solved many of these problems, and now a perfected pump of glass gives the chemical and process engineer a wonderful new tool.



NASH GLASS CENTRIFUGAL PUMP.

Made of "Pyrex" brand heat and shock resisting glass, pump impeller and casing are not affected by temperatures up to 150 degs. F. in standard design, and 200 degs. F. in special design. Hot acids, or brine cooled liquids may be pumped with equal facility. Such rigorous plant problems as pumping hot muriatic acid are now economically solved.

Fully transparent, the interior of the pump, and the material being handled, is subject to examination at all times. Cleanliness of the interior, and the color, sedimentation, etc. of the material passing through may be constantly checked without stopping.

Cleaning when required is quickly done, for the whole interior may be laid open in a few minutes. Reassembly, after cleaning, is accomplished as quickly, and the proper adjustment is practically automatic. When cleaning, acid solutions may be used without fear of injuring or pitting the hard chemical resistant "Pyrex" brand glass of which the pump is made.

Dangerous pressure is relieved automatically if for any reason it should develop on the interior of the pump, before it builds up to a point where there would be danger of fracture of the glass casing itself.

Conceived by the Corning Glass Works, designed and manufactured by the Nash Engineering Company, South Norwalk, Conn., this product of the combined skill of two great specialists is an outstanding contribution to the chemical, food and process industries.

Bulletin describing this pump may be secured from the Nash Engineering Company.

Eddy Co. Buys Parkersburg Plant

PARKERSBURG, W. Va., July 31, 1939—The Eddy Paper company of Chicago, Ill., has purchased the Parkersburg Corrugated Box company on Depot street, involving a financial transaction of nearly a quarter of a million dollars. The sale of the local plant was announced by Blair Plate, president of the firm.

President Plate said the Parkersburg plant will be known as the Parkersburg Corrugated Box company division of the Eddy Paper company, and probably will operate under an extended expansion program planned by the new owners.

Additional machinery was set up at the plant to expand the output of the local division, which at the present time employs over 50 people. A. E. Bentham, formerly of Cincinnati, Ohio, who has been plant manager for the past three years, will remain in the same capacity and no other employment changes are being anticipated by the new owners.

Mr. Bentham, a Harvard graduate, learned the paper industry from the pulp mills to the finished product, and since he was brought here three years ago to manage the local plant, its production and sales have been quadrupled, President Plate said.

Obituary

Alexander Herz

Alexander Herz, manufacturer of paper products, died July 23 at the New York Hospital after a brief illness. He was 61 years old and lived at 133 Overlook Circle, Beechmont Park, New Rochelle, N. Y.

Mr. Herz, who was born in Hungary, was the founder and president of the Hygeia Toothpick Company, the Herz Straw Company and the Herz Cup Company, all divisions of the Herz Manufacturing Company, and of the Alexander Herz Company, manufacturers of paper products. The firms had headquarters in the Herz Building, 840 East 134th Street, the Bronx.

Mr. Herz was said to be the originator of sanitary straws and sanitary quill toothpicks, as well as similar sanitary paper products. He belonged to the Quaker Ridge Golf Club, Mamaroneck, N. Y.

Surviving are his widow, three sons, Adrian A., R. Theodore and Edwin Herz, and two brothers, Rudolph and Alfred Herz.

James J. Owens

[FROM OUR REGULAR CORRESPONDENT]

HAVERHILL, Mass., July 31, 1939—James J. Owens, 59, of 14 Quimby street, for many years associated with the box manufacturing industry, succeeding his father, a pioneer in the business, died recently at his home after an illness of a year.

He was born in this city and was graduated from St. James High school and Bryant & Stratton Business college, Boston. He was engaged in the box-making business here under the name of John Owens & Company until last year, when he was forced to retire because of illness.

He was a past grand knight of Haverhill Council, No. 202; K. of C.; a member of Fr. Rasle Assembly, Fourth Degree, K. of C.; Fr. Matthews Total Abstinence society, the Pentucket club, Haverhill lodge of Elks and the Haverhill Country club.

He is survived by his wife and one son, James J. Owens, Jr.; also two brothers, John F. Owens, this city, and William H. Owens, Garden City, N. Y., and a sister, Miss Helen C. Owens, this city.

Isaac Shulman

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 31, 1939—Isaac Shulman, 56, one of the partners of the Atlantic Paper Box Company, 46 Waltham street, died suddenly Friday evening, July 28, at his home, 37 Hosmer street, Mattapan. Mr. Shulman, who was well known in the trade, left his office at four o'clock Friday afternoon, apparently in good health, but died a few hours later. He was president of the Hadrath Israel congregation.

Funeral services were held at his late home Sunday, with burial in a private plot adjoining the Hadrath Israel Synagogue, Woodrow avenue, Dorchester. His widow, Mrs. Sarah Shulman, three sons and a daughter are living.

Percy V. Lawson

Percy Vilas Lawson, 52 years old, vice-president and manager of the Menasha Wood Split Pulley Company, Menasha, Wis., died July 23 at Theda Clark Hospital, Neenah, Wis., after a long illness. His company had manufactured paper roll plugs and other items for the industry for a long time.

Indianapolis Demand Slow

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., July 31, 1939—The local paper market continued in its mid-summer slump last week and executives say that unless the weather improves the slump it is likely to continue. They are blaming the extreme heat, together with the fact that hundreds of potential customers are on vacation, for the slump. They say that basically the market is sound and the first hint of fall will see a marked revival of business.

The foregoing does not apply to all lines, however, for it's an ill temperature that does not heat somebody. The summer specialty field is the best it has been for years. Dealers are buying steadily. While they are not carrying heavy stocks, the demand has been so large that their orders are far more numerous than in previous years. Prices are firm and the new novelties in the way of packaging and arranging have influenced sales for the better. Quite a few of the jobbers are offering some attractive deals and reports have it that all are making money.

Also the demand for building papers continues abnormally heavy, at least abnormal as compared with recent years. Without doubt the volume of building paper and roofing sold in the state this year will exceed any since 1929. The first seven months tend to show this.

Demand for book paper continues fair but the volume has slowed up somewhat. Covers continue to move and there is some demand for ledgers. The entire fine paper field is in a strong position with prices being held on a firm basis.

Kraft demand is average and in some instances the market has been reported unsteady with prices shaky. Newsprint holds level and is having a fair demand for this season of the year. What leads the trade to believe there is a future is the fact that the business index of the state continues to show improvement.

Paper stock executives say the rag market for best grade rags is firm but other rags appear to be in small demand. The paper market is firm with a slight increase in mill demand.

Imperial Corp. Expands Warehouse

[FROM OUR REGULAR CORRESPONDENT]

PLATTSBURG, N. Y., August 1, 1939—Construction work on a new addition to the plant of the Imperial Paper and Color Corporation has been started which will provide the concern with more extensive warehouse facilities. The work is being rushed under the supervision of the contracting firm of Wright & Morrissey, of Burlington, Vt. The project will be completed early in October and will cost in the neighborhood of $50,000. The new addition will be approximately 100 by 80 feet, two stories high, and will be constructed of brick and concrete with structural steel frame. An unusual feature in the construction will be in the roof framework and floor system where prime structural grades of long leaf Southern pine will be used. It was stated that the pine would probably come from a Florida mill. In addition to its fireproof construction features of brick, concrete and steel, the building will also have a sprinkler system installed, according to the contract.

River Raisin Announces Changes

At a meeting of the board of directors of the River Raisin Paper Company, held in the office of the company on July 25, 1939, J. Frank Gray was elected to fill the office of president of the company, formerly occupied by G. H. Wood. Mr. Gray has been with the company since its very beginning, being one of the original five founders and promoters of the company and has held the office of vice-president of the company from commencement of operations.

Charles L. Wood, son of the deceased president and general manager, G. H. Wood, was elected by the directors to fill the office of general manager. Mr. Wood, who has been with the company for a period of 22 years, has been vice-president, in charge of purchases, for upwards of thirteen years and to these duties have now been added those of general manager of the company.

Edward C. Hollingsworth, at present general sales manager for the company, was elected to fill the vacancy on the board of directors, caused by the death of Mr. Wood, Senior. Mr. Hollingsworth has been identified with the company 25 years.

J. W. Walter, son of one of the original founders of the company, continues in the office of secretary-treasurer, which position he has now held for upwards of seventeen years, having been with the company for a total period of 21 years.

The executive and official personnel of the company now is:—

Directors:—J. Frank Gray, J. W. Walter, Charles L. Wood, Barbara K. Walter, Howard O'Brien, Edward C. Hollingsworth. Officers:—J. Frank Gray, President; Charles L. Wood, vice-president and general manager; J. W. Walter, secretary-treasurer; Edward C. Hollingsworth, general sales manager; E. Hilda Ohr, assistant secretary. Office and Plant Executives:—Harry Lamb, general superintendent of paper mills; H. R. McGovern, general superintendent of container plants; A. J. Goetz, purchasing agent; R. V. Hodge, assistant sales manager; C. F. Curson, traffic manager; W. O. Etter, personnel director; H. A. Yarger, master mechanic; Grant Miller, chief engineer; Clark V. Gallagher, chief electrician; M. F. Knack, chemist; L. M. Leibold, superintendent Silicate Plant.

Most of these executives have been with the company many years. Superintendent Harry Lamb has been with the company 27 years; O. F. Curson and H. A. Yarger 22 years, H. R. McGovern 20 years; Grant Miller 19 years; A. J. Goetz 17 years.

The branch plant managers and superintendents are as follows:—Washington, Pa. James E. Hearl, manager—C. C. Hanf, superintendent, Cleveland, Ohio. James M. Hamilton, manager—Clarke K. Walter, superintendent.

Hold Pulpwood Group Meetings

On July 7 a constructive meeting of the Group 3 members of the Southern Pulpwood Conservation Association was held on board the Nelluc, Southern Kraft Corporation's trim cruiser. Members boarded the boat shortly after 9 o'clock and proceeded into Mobile Bay where the cruiser was anchored while the meeting took place. J. E. McCaffrey is group chairman.

The Southern Pulpwood Conservation Association is an association made up of the leading pulp and paper companies in the south. It has evolved since April, 1937, when members of various pulp mills in the South invited representatives of the Federal Forest Service and all state Forest Services in the South to attend a meeting in New Orleans for the purpose of formulating plans for a pulpwood conservation program. The necessity for the conservation of Southern timber was felt by the various pulp mills due to expansion of the industry in the South. The pulp mills which are members of the association recognized that they have a public responsibilty in the conservative use of the South's timber supply. They have pledged themselves to use this timber in such a manner that the supply shall be perpetuated rather than depleted. These mills have shown their sincerity of purpose by adopting a set of forestry rules and pledging themselves to adhere to these practices—the first time in the South's history that a wood using industry voluntarily adopted self regulation. The outcome of this need for a conservation program was the formation of the Southern Pulpwood Conservation Association which opened offices in Atlanta as headquarters on last February 1 with Frank Heyward, Jr., a technical forester, as general manager.

In view of the wide regional scope of the association—from Virginia to Texas and Arkansas inclusive—it was felt wise to divide the association into three groups, these groups holding meetings possible twice or three times a year to discuss their common problems and thus being better prepared to present these problems at the annual meeting of the whole association.

Group 1, with E. A. Sterling of the Riegel Paper Corporation as chairman held its first meeting of the year on June 3 at Franklin, Va.

Plans have been completed for a meeting of Group 2 members on August 4 at Palmetto Bluff, S. C., the property of the Union Bag and Paper Company. A. H. Stier, Container Corporation of America, is group chairman.

Working in groups has been found to be a very practicable way for the association to go into its problems of cutting practices as well as the many other problems which present themselves to this coming industry of the South.

Although the Southern Pulpwood Conservation Association has only been functioning for six months, there has already taken place a decided improvement in the type of woods practices followed throughout the South by the member mills.

Japanese Pulp Production Declines

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 2, 1939—Production of wood pulp by members of the Japan Paper Manufacturers' Association totaled 190,264 short tons during the first quarter of 1939, a decline of 11,096 tons or 5.5 per cent from the output of the previous quarter, but an increase of 4,749 tons or 2.5 per cent over the first quarter 1938 production.

Consumption of wood pulp by the members of the Japan Paper Manufacturers' Association totaled 216,455 tons during the first quarter of 1939, including 114,106 tons of chemical pulp and 102,349 tons of mechanical pulp, while in the corresponding period of last year, consumption totaled 217,654 pounds, of which 122,102 tons were chemical pulp and 95,553 tons mechanical pulp.

New York-Canadian Div. To Meet

Chairman C. P. Ludington of the New York-Canadian Division of the American Pulp and Paper Mill Superintendents' Association announces further progress in plans for a fine convention in Montreal, September 8 and 9. The Mount Royal Hotel will be headquarters, where the Salle Doree has been reserved for the meetings and functions.

Beginning with registration early on the 8th, or by mail where possible, activity begins promptly at 9:30 when the cavalcade starts for visits to the paper mills of the district around Montreal. Invitations have been received from President Jean Rolland to visit the mills of the Rolland Paper Company at St. Jerome and Mont Rolland, and from President Harold Crabtree to visit the Crabtree Mills Divisions of Howard Smith Paper Mills. The superintendents will also be welcome at the Forest products Laboratories of Canada in Montreal, of which Dr. Johnston is director. Those who wish to visit Crabtree Mills and the Forest Products Laboratories may do so in the afternoon.

Golfers will have the privilege of playing the annual tournament on one of Montreal's finest courses, the Marlborough Golf and Country Club. The delegates will stop here for lunch and golf on the way back to Montreal from the mills, while those who do not care to visit the mills are urged to play their matches in the morning.

The annual dinner-dance and entertainment will be held on Friday, the 8th at the Mount Royal: it will be a real, full-of-fun function, with presentation of prizes, etc. A number of attractive articles have already been offered to the committee for prizes.

The Friday program for the ladies will be shopping, sight-seeing, etc., in the morning, then lunch, bridge and golf at the Senneville Country Club. There is a good bathing beach for those who like the water. Cars or busses will leave the hotel at noon for the ride past the rapids and along the river, returning in time for the dinner-dance.

An excellent program of papers has been arranged for the Saturday morning session, following the business meeting at 9:30. The theme of the meeting is Control of Manufacturing Operations. The general subject is taken up in three parts, to be discussed as follows:

Control in the Ground Wood Mill, by C. D. Malcolm, of J. R. Booth, Ltd.

Control in the Chemical Pulp Mill, by Dr. J. N. Swartz, of Howard Smith Paper Mills.

Control in the Paper Mill, by J. B. Beck, of the E. B. Eddy Company, Ltd.

Honored guests at the luncheon to be held at the close of the general meeting, at one o'clock, will be R. A. McInnis, president of the Canadian Pulp and Paper Association and Jean Rolland, president of the Rolland Paper Company, who will speak on Paper Making in Quebec Province. Saturday afternoon will be free for sightseeing and recreation, and for those who stay over till Sunday in this interesting city there will be a party in the Normandie Roof at the Mount Royal Hotel.

The secretary of the Division, J. N. Stephenson, Gardenvale, Que., will be pleased to hear from any non-members as well as members who expect to attend, and they are advised to reserve accommodation at the Mount Royal.

No Right To Assess Inheritance Tax

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., August 1, 1939—A decision handed down last week by Judge Fred Grant contends that the State of New York has no right to assess an inheritance tax upon an irrevocable trust established by the late David M. Anderson, local paper manufacturer, involving securities of $261,007.90. In the decision it is ruled that the legal provision for the taxing of trust funds was established five years after Mr. Anderson set up the fund and that it is not retroactive. The matter was brought before Judge Grant for determination on appeal of Mrs. Elizabeth Wise, H. E. Machold and Henry Wise, as executors of the will of Mr. Anderson. Their appeal was based on the contention that the state had no right to tax the trust. Mr. Anderson died in 1935 and soon after an estate tax appraisal was ordered. The report included in the gross estate securities of an appraised value of $261,007.90 held under the irrevocable deed of trust executed by Mr. Anderson in 1926. The trust provided that the income from the fund be paid to Mr. Anderson so long as he lived. Upon the appraiser's report a pro forma order assessing the tax was made in 1935 and it is from this that the executors appealed on the ground that the securities are not subject to tax and should not be included in the gross estate. Judge Grant traced the history of federal and state laws regarding the taxing of estates, showing that the state law has been modified from time to time to parallel the federal law.

Cape Terminals, Inc. Starts

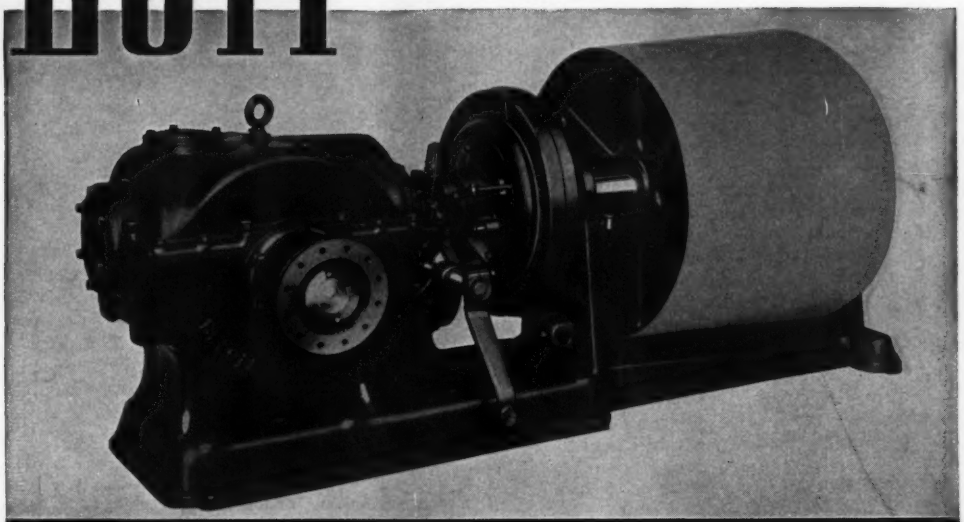
CAPE VINCENT, N. Y., August 1, 1939—The newly organized Cape Terminals, Inc., started operations this week with a large force of men obtaining jobs as the first boat load of pulp wood reached here. The freighter carried nearly 1,500 cords of dry pulp wood from the maritime provinces along the Gulf of St. Lawrence. The stevedores unloaded the freighter and transferred the logs to freight cars for transportation to the Deferiet mill of the St. Regis Paper Co. The main workmen on the unloading job were employes from the St. Regis Paper Co. dock at Waddington. Another cargo of pulp wood is due at the new terminal early next week from Mount Louis, Quebec.

The new Cape Terminals, Inc., is headed by Clarence F. Hall as president and Herbert D. Weller as vice president and general manager. The new dock and trestle was built by the Stewart Sill Construction Company which started the project early in May and completed it this month. The new sheet steel piling dock, 140 feet long, is the first of its kind constructed along the St. Lawrence River although there are a number along the Great Lakes.

John B. Hay Sails for Europe

CHESTER, Penn., July 31, 1939—John B. Hay, export manager and assistant secretary of the Scott Paper Company here, has sailed on a three to four months' trip to England and Europe, where he expects to cooperate with European agents in increasing sales of the company's various products. Blue Distributors, Ltd., represent the Scott Paper Company in England; N. V. De Hollandsche Papier Industrie in Holland, and Blue Point Products and M. Marchant in Belgium.

BELOIT



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Forest Resources of N. Central Georgia

The Southern Forest Experiment Station of the United States Department of Agriculture has just issued Survey Release No. 44, "Forest Resources of North Central Georgia," by A. R. Spillers, of the Southern Forest Survey staff. North central Georgia, the region covered by this report, has for many years been one of the widely settled agricultural sections of the State. During the nineteenth century settlers cut and burned much of the timber on its nearly 6½ million acres to clear the land for agriculture, but this area now has 2½ million acres of forests, mostly old-field and second-growth stands.

The supply of timber in north central Georgia is sufficient to justify and maintain continuously a considerably increased forest industry. If the forest resource is fully developed and utilized, the opportunity for employment of idle people and idle acres will be increased greatly. The findings of this report indicate that both the soil and the climate are favorable to rapid tree growth and to the production of continuous crops of timber.

More and better forest fire protection, a better understanding and more general practice of good forest management, and the establishment of greater and more diversified local manufacturing outlets for forest products are the outstanding needs to make this timber wealth play its full part in the economic development of the region, according to the report.

Paper Directory of All Nations

The 1939 edition of the "Paper Makers' Directory of All Nations", published by Dean & Son, Ltd., London, England, has just been issued.

Now in its 48th year of issue, this Red Book of the paper industry is of special interest to all those engaged in the production, purchase, sale or distribution of paper, pulp and board, in the equipment of mill or factory or in the supply of raw material in connection with the paper and allied trades, while its alphabetical arrangement throughout makes it particularly easy of reference.

Mills formerly in the Czechia portion of Czechoslovakia (also the Memel Mill) will now be found in the section dealing with Germany, while Slovakia appears as a separate heading.

The directory gives particulars of the paper and board mills of Great Britain and Ireland and similar details concerning the paper, pulp and board mills in British Dominions Overseas and in Foreign Countries; a comprehensive list of mill productions, arranged alphabetically in three ways:—(1) class of goods manufactured under more than 400 trade headings, (2) country of origin, (3) name of firm; and a classified index to advertisers, forming a most useful buyer's guide.

The volume is attractively bound in red cloth and contains over 1000 pages. The Paper Makers' Directory of All Nations may be ordered from the Lockwood Trade Journal Company at $7.50, all charges prepaid.

Henry Ford Returns from Successful Trip

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 31, 1939—Henry Ford of the Andrews Paper Company has returned from a very successful trip to New York and Philadelphia, on which he was accompanied by his wife and son.

Japanese Pulp Production Increases

Wood pulp production in Japan increased 2.5 per cent in the first quarter of 1939 compared with the corresponding period in 1938, according to the Forest Products Division of the Department of Commerce.

Reports from Japan place the output of pulp for the first three months of this year at 190,000 tons. Of this, chemical pulp accounted for 92,828 tons and mechanical pulp constituted 97,487 tons, or increases of one and five per cent, respectively.

Future pulp supply is reported facing curtailment under Japan's restriction policy, which seeks to reduce production of certain goods in which pulp is used.

The Forest Products Division reported that 21 companies have been organized in Japan, at the behest of the Government, to produce pulp from sources other than wood. Eight of these companies reportedly have been successful in producing a finished product beyond the experimental stage. The 21 mills have a planned capacity of 161,600 tons.

Japan is said to be experiencing considerable difficulty in the development of substitute wood pulp. It is reported that lack of technical skill, inadequate raw materials and high production costs have been barriers to successful production of the substitute.

Materials used thus far for the substitute pulp include reeds, bean stalks, straw, mulberry twigs, seaweeds and sugar cane refuse.

German Paper Production Decreases

WASHINGTON, D. C., July 26, 1939—The upward trend which has been observed in Germany's paper production since 1934, and which resulted in a record output in 1937, came to an abrupt halt early in 1938. Total production for that year even dropped slightly below the amount recorded for 1937. The decline was confined to printing, writing and special papers, inas much as the output of wrapping paper and paperboard was higher than in the preceding year.

It is not believed that the shortage of raw materials, especially wood pulp, however seriously it may have been felt otherwise, accounts for the downward tendency in the production of printing and writing paper as well as special paper in 1938. Nor would it be correct to ascribe it to a decrease in the domestic consumption, since the per capita consumption of paper in Germany rose from 34.8 kilograms in 1937 to 35.2 kilograms in 1938. The outstanding cause of the decrease in production in 1938 was, without a doubt, the sharp drop in exports due to a weak world market as well as the boycotting of German goods in a number of countries. In this connection, it is of interest to note that according to the German Foreign Trade Statistics export shipments during 1938 of paper and paper products were 189,000 metric tons behind the total recorded for 1937.

High Safety Record at Fiber Mill

According to the official report of the Delaware Safety Council, Wilmington, Del., for the first five months of 1939, the National Vulcanized Fibre Company, Newark, Del., has established a record of no lost-time accident at its mill at Yorklyn in that period. It is one of the 19 industrial plants in the State to attain this safety record. The company, also, is among those reporting a similarly perfect safety record at its Newark mill during the month of May, the last month for which statistics are available.

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MEN who buy or use valves are obviously familiar with them. From experience, they are in a position to know the value of quality in valve design and construction—even in the finest degrees. They know, too, and better than does the front office, how small losses caused by inefficient valves may seem negligible—yet can easily mount up to an important figure that shows in the profit and loss statement.

Crane valves are engineered to stop even the small losses. The extreme accuracy of their manufacture and the careful analysis and specification of the materials that go into each part assure long, economical service and few time-wasting replacements.

Regardless of what your piping problem may be—regardless of how specialized your field—you will find the valve you want in the complete Crane catalog which includes more than 38,000 items. Consult the Crane Representative regarding valves and fittings to meet your specific requirements.

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CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Financing and Operation of Pulp and Paper Mills

General Construction News

New York, N. Y.—The National Gypsum Company, 190 Delaware avenue, Buffalo, N. Y., manufacturer of wall board and kindred products, has filed plans for new addition to branch plant at East 148th to 150th street, Bronx, where additional property recently was acquired. New unit will be located on Cabot street, near Oak Point avenue, and will consist of a three-story and basement structure, 103 x 800 feet, to provide for large increased capacity. It is reported to cost over $400,000, including equipment. Company has lately begun the production of wall board at this plant, and will expand manufacturing facilities in this line. Other units will be erected, including a structure for rock storage and distribution. J. D. Anderson is company architect for building noted; D. F. Hunt, first mentioned address, is chief engineer.

Greenville, S. C.—The Palmetto Box Company, Greenville, organized recently with capital of $50,000, to manufacture paper boxes and containers, has superstructure under way on new local plant, lately referred to in these columns, and is awarding miscellaneous contracts for completion, including award for roofing to the Ramseur Roofing Company, 353 West McBee avenue, Greenville; for steel sash to the William Bayley Company, Springfield, Ohio; and for brick to the Merry Brothers Brick & Tile Company, Augusta, Ga. New structure will be one-story, about 80 x 150 feet, and is estimated to cost approximately $50,000, with equipment. General erection is being carried out by Potter & Shackleford, Inc., Greenville. Plant will be ready for production early in the fall. New company is headed by Edwin S. Dillard and Carl E. Morgan, Masonic Temple Building, Greenville.

Chicago, Ill.—The Fort Dearborn Lithograph Company, 2846 North California avenue, manufacturer of paper specialties, has approved plans for new addition to plant on adjoining site, to be two-story and basement, 52 x 125 feet, estimated to cost over $60,000, with equipment. Glass block will be used for the exterior. Bids have been asked for general erection and contract will be awarded soon. Edward H. Nordlie, 4825 North California avenue, Chicago, is architect. J. N. Adler is secretary.

Houston, Tex.—The Houston Printing and Stationery Company, 1208 Texas street, manufacturer of commercial paper products, plans early rebuilding of portion of converting plant recently destroyed by fire, with loss reported close to $35,000, with equipment. Reconstruction will approximate a like amount.

Los Angeles, Calif.—The American Can Company, 111 Sutter street, San Francisco, Paper Container Division, is said to be planning early establishment of a new plant unit for the production of paper containers at Los Angeles. Company is now producing a line of such specialties at its San Francisco plant at Thirty-second street and Third avenue, with considerable part of output for milk containers. This division of company has been expanding facilities in different plants throughout the country in recent months, and is now said to be running on a production basis of about 6,000,000 paper containers weekly at all plants. Main offices of company are at 230 Park avenue, New York, N. Y.

New York, N. Y.—The Carroll Envelope Company, organized to manufacture paper specialties, has recently leased space in building at 19 West Twenty-first street, and will occupy for paper-converting plant.

Los Angeles, Cal.—The Schumacher Wall Board Corporation, 5721 South San Pedro street, Los Angeles, manufacturer of wall board, plaster board and kindred products, has asked bids on general contract for initial unit of new plant on Firestone boulevard, South Gate industrial district, where company recently acquired a tract of about 12 acres of land, as noted in these columns. New structure will be one-story, approximating 10,000 square feet of floor space; a boiler house and miscellaneous mechanical buildings also will be erected. It is expected to begin erection before the close of August. Early in the fall it is proposed to complete plans for other production units and ask bids for erection. Entire project is reported to cost close to $1,000,000. Leland S. Rosener, 233 Sansome street, San Francisco, Calif., is consulting engineer, in charge. R. H. Shainwald is president, and A. R. Moylan, general manager.

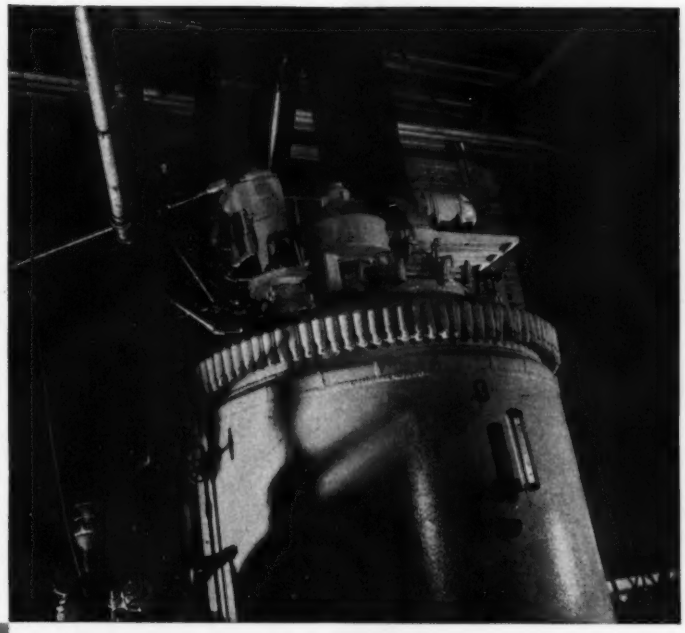
New York, N. Y.—John Baumshlag, paper boxes and containers, has leased a floor in building at 591 Broadway and will occupy for new production and distributing plant.

Fredericksburg, Va.—The Sylvania Industrial Corporation, 122 East 42nd street, New York, N. Y., manufacturer of cellulose transparent paper materials, has begun erection of one-story addition to mill at Fredericksburg, previously referred to in these columns, and will push structure to early completion. It will be used for expansion in storage and distribution division, and is estimated to cost close to $45,000, with equipment. The Hughes-Foulkrod Company, 1505 Race street, Philadelphia, Pa., is general contractor.

Lockport, N. Y.—The Flintkote Company, 50

REICHHOLD

SYNTHETIC RESINS



CUT THE COST OF HOT MELT GLOSS COATINGS

The use of synthetic resins in hot melt gloss coatings is giving paper makers a powerful, new sales story—a story of a better product produced at lower cost.

Substituted for lacquer, synthetic resins are producing an improved gloss with fewer applications. One manufacturer reports a reduction of 1/3 in his coating materials and better results on the finished job. A single hot melt application will give a good gloss on an inferior paper where a number of lacquer coats would be required to do a comparable job.

This is one instance of synthetic resins' value to the paper industry. Other uses include clearer, paler overprint varnishes and lacquers and more efficient coatings. Reichhold, the world's largest producer of surface coating synthetics, is naturally a preferred source of these materials.

Your inquiries concerning Reichhold's complete line of synthetic resins, processed copals and ester gums are welcomed.

REICHHOLD CHEMICALS
INCORPORATED DETROIT, MICHIGAN

West 50th street, New York, N. Y., manufacturer of building and roofing papers, etc., is operating on a high production schedule at mill at Lockport, with orders on hand said to insure continuance of present basis for a number of months to come. Company also is active on similar large output schedule at branch mills at Little Ferry, N. J., and New Orleans, La.

Gatineau, Que.—The Masonite Company of Canada, Ltd., recently organized as a subsidiary of the Masonite Corporation, Laurel, Miss., manufacturer of pulp board products, as noted in these columns, has taken over local property and is said to have plans maturing for proposed new mill, consisting of several one-story units, to be equipped for large capacity. It is estimated to cost over $150,000, with machinery. S. L. de Carteret, vice-president of the Canadian International Paper Company, Montreal, Que., with mill at Gatineau, is president of new company; R. G. Wallace, vice-president of parent organization, will be vice-president of the new subsidiary.

Government Paper Bids

WASHINGTON, D. C., August 2, 1939—The Government Printing Office has received the following bids for 40,000 pounds of No. 32 yellow sulphite writing paper; Cauthorne Paper Company, 5.07 cents; Old Dominion Paper Company, 5.144 cents; Perkins-Goodwin Company, 4.83 cents; Whitaker Paper Company, 4.54 cents; R. P. Andrews Paper Company, 4.9 cents; Barton, Duer & Koch Paper Company, 4.52 cents; Marquette Paper Company, 4.9 cents; Aetna Paper Company, 5.96 cents; Mudge Paper Company, 5.5 cents; and Mathers-Lamm Paper Company, 5.363 cents.

For 1,050 sheets of 21 x 32 pink gummed paper; R. P. Andrews Paper Company, $18.00 per M sheets; Whitaker Paper Company, $7.83; and Mathers-Lamm Paper Company, $21.03.

For 5,000 pounds of 24 x 36 oiled manila tympan paper; Mathers-Lamm Paper Company, 7.87 cents; R. P. Andrews Paper Company, 7 cents; Cromwell Paper Company, 7.75 cents; and Link Paper Company, 7.4 cents.

For 1,110 pounds (2,500 sheets) of No. 1, 40 x 48 rope manila paper; Mudge Paper Company, 14.5 cents.

For 40,000 pounds of No. 32 yellow sulphite writing paper; Mathers-Lamm Paper Company, 5.36 cents; Aetna Paper Company, 5.96 cents, Stanford Paper Company, 5.4 cents; Barton, Duer & Koch Paper Company, 4.52 cents; R. P. Andrews Paper Company, 4.9 cents; Butler Company, 5.19 cents; Cauthorne Paper Company, 5.11 cents; Perkins-Goodwin Company, 4.83 cents; and Old Dominion Paper Company, 4.537 cents.

Goes With Whitney-Anderson

SPRINGFIELD, Mass., July 29, 1939—Sheldon Bradley, for the past 17 years connected with the advertising and sales promotion departments of the Strathmore Paper company, has severed his connections with that concern to become manager of the news service bureau of the Whitney-Anderson Paper company of this city.

He is a native of Springfield and was educated in the local schools. As a lieutenant in the United States navy during the World war, he spent most of his military service in foreign waters.

MILLS FEAR RETALIATION

(Continued from page 13)

resulting in a heavy loss to manufacturers. Mayors of various cities also testified as to the advantages from the standpoint of employment of a more adequate water power supply.

The Conservation Commission opposes the proposed reservoir site at Lily, suggesting one further down the river at Leeman, but Mr. Weckwerth said the latter would cost $1,000,000 because of the value of the farm lands that would have to be taken for flowage purposes.

Tolls Assessed Against Mills

Tolls of $133,789 have been assessed against water power users on the Wisconsin River by the Wisconsin Valley Improvement Company, Wausau, Wis., for the first half of 1939, according to a schedule submitted to the Wisconsin Public Service Commission for approval. Hearings were to be held at Wausau July 29 to hear any objections to the assessments of benefits.

Among the assessments are: Wisconsin Public Service Corporation, $34,940; Rhinelander Paper Company, $2,675; Tomahawk Pulp Company, $922; Tomahawk Kraft Paper Company, $3,900; Marathon Paper Mills Company, $3,985; Consolidated Water Power and Paper Company, $30,825; Wisconsin River Paper and Pulp Company, $8,911; Whiting-Plover Paper Company, $190; Nekoosa-Edwards Paper Company, $20,025; Wisconsin Power and Light Company, $23,279.

Appleton Woolen Mills Files Objections

Appleton Woolen Mills, Appleton, Wis., filed objections through Senator Alexander Wiley last week on a truth-in-fabrics bill which has since passed the Senate. The company said in a letter: "No fair manufacturer objects to a practical truth-in-fabric bill, but this bill is impractical." It was pointed out as being so because no laboratory could distinguish between virgin and re-worked wool, and "because identification is impossible, such a law invites rather than stops unfair labelling."

The bill also was unfair, the company stated, because it does not allow wool pulled from the pelt of slaughtered animals to be labelled virgin wool.

Kimberly-Clark Atlas Mill Leads

Atlas mill of the Kimberly-Clark Corporation at Appleton, Wis., is still leading in the company's intermill safety contest which entitles the winner to send representatives with expenses paid to the National Safety Council meeting. This mill has had no lost-time accidents thus far. The Niagara, Wis., mill is second, with two injuries, and the Kimberly, Wis. mill and Lakeview mill at Neenah, Wis., are tied for third place with five injuries each. Niagara Falls, N. Y. mill has had ten injuries. The contest is to end September 15.

Wink-Collins Nuptials

Willmer Wink, technical assistant at the Institute of Paper Chemistry, Appleton, Wis., and Miss Avis Collins of Appleton, were married July 22 at Emmanual Evangelical Church at Appleton. The couple is taking a 2-week trip, and will reside at 707 N. Superior St., Appleton.

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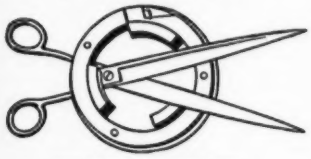
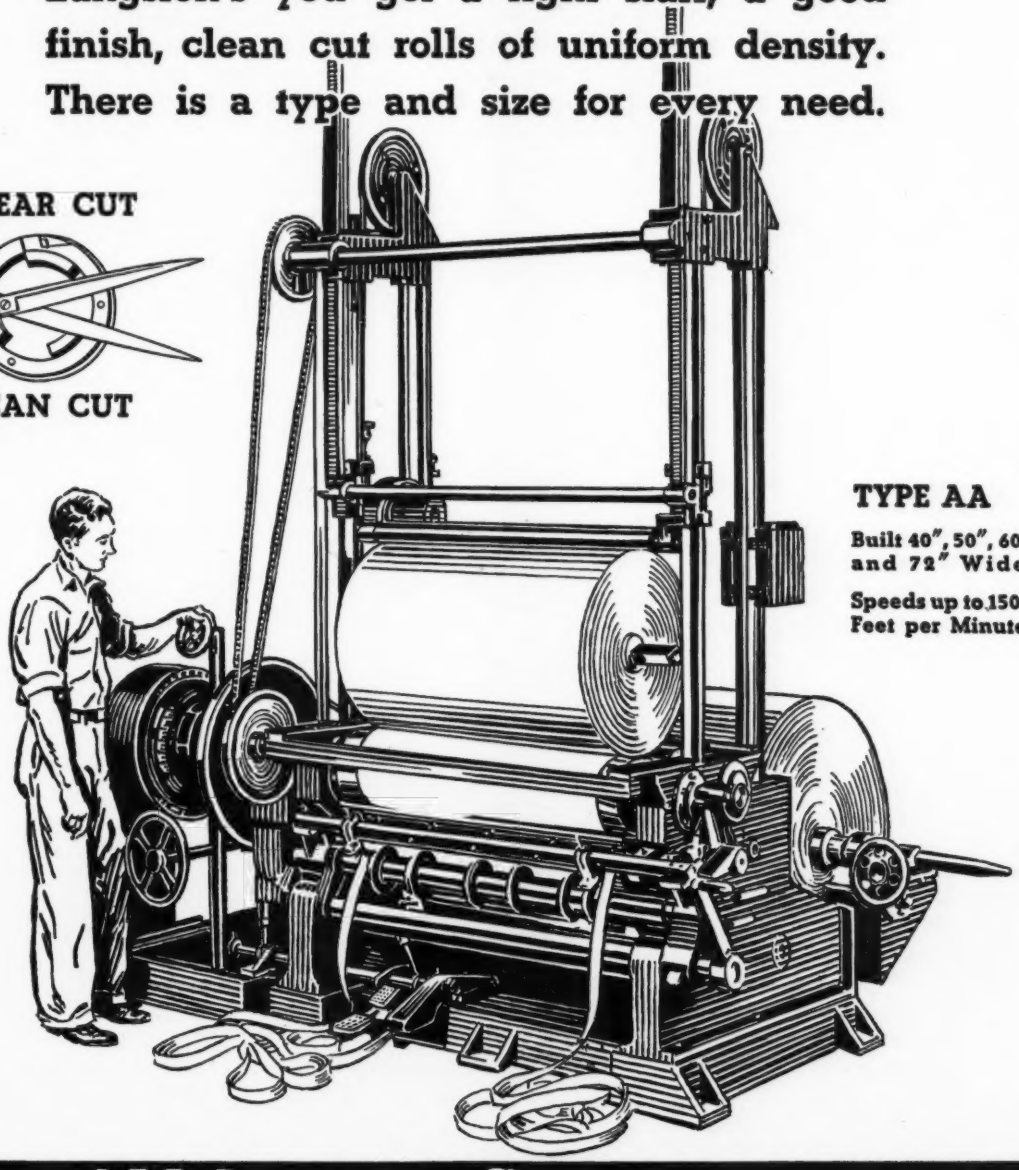


CLEAN CUT



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Ronald G. Macdonald
Editor Technical Section

Lynne M. Lamm
Washington Correspondent

Vol. 109 New York, August 3, 1939 No. 5

COMING EVENTS IN PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Syracuse Hotel, Syracuse, N. Y., September 12-14.

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

NATIONAL SAFETY COUNCIL, PAPER AND PULP SECTION, Annual Meeting, Atlantic City, N. J. October 16-20.

RECOVERY LONG DELAYED

Investigations by Federal committees are unnecessary to search out facts which are well known to most business men but which seem to persistently evade and confuse the minds of some statesmen whom, it surely is reasonable to expect, should be no less well informed on the cause and effect of laws they have propounded. It is complimentary to the vigor of business enterprise that the state of commercial activity rose sharply last month against the customary seasonal trend and deterrents emanating from Washington. Whatever faults business may justly be held responsible for, it seems clear that blundering laws and unnecessary restrictions on business activity, may fairly be placed at the source of origin. Washington, rather than Wall Street, appears to have erred in the proper evaluation of that broad state of well-being generally termed prosperity.

The answers to many of the questions which President Roosevelt has asked and requested investigative bodies to ascertain, are known to many men in private life and it is not unreasonable to expect all members of our law-making bodies should be equally well posted. For example, the President requested the Temporary National Economic Committee to investigate why money is idle and why recovery is retarded. Two replies which appear correct answers to this important query are to be found in the recent statements of Jesse H. Jones former chairman of the RFC and in the more direct statement issued by the New York Credit Men's Association.

The printed text of Mr. Jones discloses that heavy losses are in prospect for the liberal loan policy of the Reconstruction Finance Corporation. Money must remain idle in the banks unless investors can loan the funds on adequate security of repayment. Good banking practice cannot meet the so-called liberal terms of the RFC without heavy losses that would be likely to result in insolvency. In his unrevised testimony on President Roosevelt's new lending bill, Mr. Jones advised the Senate Banking Committee on July 22 that foreclosures totaling $12,000,000 were under way. When asked by Senator Townsend whether the lending agency had made all business loans which "were in any way eligible", Mr. Jones said, "We think we have. We are not infallible. We make plenty of mistakes and plenty of bad loans. We will have a very substantial percentage of losses on our business loans." In reply to Senator Adams who asked if the losses would "run as high as 10 to 20 per cent", Mr. Jones testified that the RFC was currently foreclosing on $12,000,000 industrial loans and that it would take a "very heavy loss" on the transactions." If anybody makes loans on a more liberal basis than we are making them now", he added, "they will be grants, not loans".

The question of why money is idle and recovery retarded was put to 2,100 members of the New York Credit Men's Association, engaged in twenty-eight durable and consumer goods fields and including paper houses. Many of the business men in their replies said that present conditions give industry and trade no incentive to expand. Risks are great and returns, because of heavy taxes, are so small that few companies care to expand. Recovery, the majority of business men replied, is impossible until the Government makes a sincere attempt to keep expenses within income. Many said that the tax structure should be thoroughly revised. Because of the "spend form recovery" policy of the Administration, business men said there is fear of inflation and confidence is undermined.

The Administration's attitude toward business was held largely responsible for present conditions in the majority of replies. The National Labor Relations Act and the manner of its administration, was cited as another major deterrent to increased business activity and recovery. Many of the business men expressed the opinion that the National Labor Relations Board rulings were biased; that business is not given a fair hearing. Among the minor reasons cited for the inability of business to expand more rapidly, was the failure of business to cooperate with the Administration, conflicts of authority within the Government, the great size of the Government's pay roll, and the political pressure exerted by those on relief.

The survey of the New York Credit Men's Association cited as a major cause of delayed recovery the New Deal policies as being not only adverse to business but so changing that business men found it very difficult to plan for the future with any degree of certainty. It is not clear that encouragement for

business is to be found in the preliminary report of the Temporary National Economic Committee. The Committee concludes that there is a definite tendency toward monopoly in American industry, resulting in concentration of wealth, increasing unemployment and narrower markets.

It suggests that this trend can be halted in some degree at least, by strengthening anti-trust laws and patent laws.

The Committee finds criminal prosecutions for anti-trust law violations ineffective and recommends: (1) That the Government press civil actions against anti-trust law violators, claiming damages amounting to twice the total net income earned by corporations during the period of violation. (2) That civil actions also be lodged against responsible officers and directors of the corporation for sums equal to twice their earnings from corporations during the period of violation. (3) That action also be taken to suspend or discharge officers responsible for the anti-trust law violations. Recommendations to strengthen anti-trust and patent laws are said by the Committee to be justified by findings already made. Future studies, it is hoped, will disclose further recommendations to establish "broader markets, more employment, and freer opportunities for the people of America".

Paper Bought Under Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 2, 1939—For the week ended July 15, the Government purchased $1,636,895.48 worth of paper and allied products under the Walsh-Healey Act as follows: paper for the Government Printing Office from The Aetna Paper Company, Dayton, Ohio, $564,493.70[1]; ledger paper for the Government Printing Office from the Baxter Paper Company, Baltimore, Md., $10,464.00[1]; paper for the Government Printing Office from Butler Company, Chicago, Ill., $51,100.40[1]; paper for the Government Printing Office from Marquette Paper Company, Chicago, Ill., $39,134.00[1]; paper for the Government Printing Office from Frank Parsons Paper Company, Washington, D. C., $50,861.00[1]; paper for the Government Printing Office from Perkins-Goodwin Company, New York City, $275,026.60[1]; mimeograph paper for the Home Owners Loan Corporation from Mathers Lamm Paper Company, Washington, D. C., $14,753.13[1]; toilet paper for the Veterans Administration from Hanover Paper Corporation, New York City, $10,052.00; paper for the Government Printing Office from R. P. Andrews Paper Company, Washington, D. C., $396,052.60[1]; paper for the Government Printing Office from Cauthorne Paper Company, Inc., Richmond, Va., $56,009.40[1]; paper for the Government Printing Office from Mathers-Lamm Paper Company, Washington, D. C., $11,841.50[1]; paper for the Government Printing Office from The Old Dominion Paper Company, Norfolk, Va., $119,559.15[1]; and paper for the Government Printing Office from Stanford Paper Company, Washington, D. C., $37,548.00[1].

[1] Indefinite contract other than General Schedule. Purchases to be made if and when needed.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1939	1938	1937	1936	1935	1934
January	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	84.0%	69.6%	90.3%	76.0%	70.5%	.....
April	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	80.2%	69.0%	90.6%	81.6%	69.4%	.....
June	79.5%	66.0%	87.3%	80.7%	72.3%	.....
July	.....	72.0%	81.8%	77.3%	64.9%	.....
August	.....	77.2%	82.9%	81.5%	70.9%	.....
September	.....	76.3%	78.6%	80.5%	71.9%	58.2%
October	.....	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average	.....	72.3%	80.6%	81.3%	70.5%	.....
First 29 weeks	80.1%	67.9%	89.1%	78.7%	68.9%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1939		CORRESPONDING WEEKS, 1938	
June 17	78.8%	June 18	66.1%
June 24	79.0%	June 25	67.7%
July 1	81.1%	July 2	68.8%
July 8	56.1%	July 9	58.9%
July 15	80.6%	July 16	75.7%
July 22	78.3%	July 23	76.3%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	June 17, 1939	June 24 1939	July 1, 1939	July 8, 1939	July 15, 1939	July 22, 1939
0% to 50%	73	79	64	140	63	47
51% to 100%	232	226	241	156	218	149
Total Mills Reporting	305	305	305	296	281	196

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1935	62%	68%	68%	63%	61%	66%	62%
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	64%	67%	.....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1935	67%	71%	77%	71%	61%	66%
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%

Week end. June 17, 1939—67%
Week end. June 24, 1939—66%
Week end. July 1, 1939—70%
Week end. July 8, 1939—42%
Week end. July 15, 1939—71%
Week end. July 22, 1939—70%

[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.

New Paper Mills in Chile and Java

Formation of a company which expects to have a wood pulp and paper mill completed early in 1940 was reported from Santiago, Chile, to the Forest Products Division of the Department of Commerce today.

At the same time, the Commerce Department was informed that Netherlands interests are contemplating construction of a new paper mill in West Java to produce low-priced packing paper. Rice straw will be used as the raw material during the initial stages of operation.

The Chilean mill, in addition to producing wood pulp and insulating material, plans to make paper for magazines, blank books and similar uses. It was reported that the company has acquired 45,000 acres of timberland from which a soft wood known as olivo will be obtained. This represents the first serious attempt to manufacture paper from softwood trees which are comparatively numerous in south central Chile.

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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

United States Patents on Papermaking

Second Quarter, 1939

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI

The following list of patents has been compiled from the current numbers of the Official Gazette of the United States Patent Office. Since, as a rule, only one claim is published in the Gazette, it is not claimed that the list is complete; it is also possible that some patents have been included which do not apply to papermaking.

Copies of any of the following patents may be obtained from the U. S. Patent Office, Washington, D. C., by sending ten cents ($0.10) for each patent desired. The number, name of inventor, and title of patent should be given in the request. Personal checks and postage stamps are not accepted. Books of coupons may be purchased for $2.00 or $10.00, good for 20 or 100 patents, respectively. Coupon orders do not have to be accompanied by letters of transmittal.

April 4, 1939

2,152,633. Drying oil composition. William R. Catlow, Jr., and Harold F. Wakefield, assignors to Bakelite Corporation, New York, N. Y. Filed April 25, 1936. 10 claims. (Cl. 134-26). An oil-resin composition dispersible in a liquid medium to form a coating composition drying substantially by evaporation of liquid medium by advancing a composition of a fatty oil and oil-insoluble resin of the phenol-aldehyde type to a condition of non-extractability in acetone in the presence of a control agent, such as oxides, hydroxides, naphthenates and tungstates of zinc, lead, etc.

2,152,645. Photoelectric color measuring and analyzing apparatus. Alfred L. Holven and Thomas R. Gillett, Crocket, Calif. Filed Dec. 19, 1934. 8 claims. (Cl. 88-14).

2,152,708. Apparatus for forming window openings in traveling webs. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed Dec. 18, 1936. 6 claims. (Cl. 164-28). A method for changing the speed of the web to the peripheral speed of the rotary cutter at the ends of the window opening.

2,152,732. Method of producing laminated paperboard and the like. Carl G. Dreymann, Pittsburgh, Pa. Filed Sept. 26, 1936. 2 claims. (Cl. 154-40). A molten film of petroleum wax, which gelatinizes on cooling from the molten condition, is applied to a web of paperboard and, before the point of solidification is reached, a second uncoated web of cellulosic material is applied and integration of the whole is effected without breaking the continuity of the film so intercalated.

2,152,745. Bag construction. Albert Klass, Brooklyn, N. Y., assignor to Lloyd Manufacturing Corp. Filed Dec. 10, 1937. 1 claim. (Cl. 150-1).

1,152,770. Drying method and apparatus. Bernard Offen, Chicago, Ill. Filed Feb. 14, 1935. 10 claims. (Cl. 34-48). Method of drying a freshly printed paper web.

2,152,775. System for making and/or wrapping boxes. John S. Stokes, assignor to Stokes and Smith Company, Summerdale, Philadelphia, Pa. Filed Jan. 18, 1937. 35 claims. (Cl. 93-54.2). A conveyor for transporting assemblies comprising box-structure and partially applied sheet material toward the sheet-applying mechanism.

2,152,829. Film-forming composition. Peter A. van der Meulem, assignor to John R. Ditmars, New Brunswick, N. J. Filed Aug. 24, 1935. 5 claims. (Cl. 134-12). A composition suitable for coating paper which consists of gelatin or casein, a water-insoluble salt of a sulfonated vegetable oil and water.

2,152,941. Machine for forming liner bags for containers. Isaac L. Wilcox, assignor to Oswego Falls Corporation, Fulton, N. Y. Filed Oct. 13, 1936. 40 claims. (Cl. 93-60).

2,153,316. Method for the production of plastics. Earl C. Sherrard, Edward Beglinger, John P. Hohf and Ernest Bateman, assignors to Henry A. Wallace, Secretary of Agriculture of the United States of America. Filed Jan. 28, 1938. 6 claims. (Cl. 260-9). Vegetable cellulose material is hdyrolyzed with 2 parts of acid and 250 parts of water per 100 parts of vegetable material under controlled conditions of steam pressure and time to hydrolysis; the product has properties of plastic flow and maximum tensile strength when subjected to heat and pressure.

2,153,416. Treatment of animal and vegetable fibers. Leo Frenkel, assignor to The Hatters' Fur Exchange, Inc., Walden, N. Y. Filed May 22, 1936. 5 claims. (Cl. 8-109). Bleaching with hydrogen peroxide, hexamethylenetetramine and a catalyst.

2,153,445. Process of preparing starch pastes. John J. Willaman, Robert A. Diehm and Edward W. Clark, assignors to Röhm & Haas Company, Philadelphia, Pa. Filed April 21, 1936. 17 claims. (Cl. 195-114). A starch paste size is prepared by diastatic enzyme action by incorporating in the reaction mixture an activating amount of an alkaline earth metal peroxide.

April 11, 1939

2,153,584. Adhesive. William Henry Moss, assignor to Celanese Corporation of America. Filed June 18, 1936. 3 claims. (Cl. 260-6). Gelatine, a sugar and a methylene citric acid-glycerol resin, the weight of the sugar and resin together being 10-18 times the weight of the gelatin.

2,153,660. Bonding of composite articles with polymerized adhesives. George I. Clapp, Wells, Maine. Filed Sept. 26, 1936. 2 claims. (Cl. 154-40). The use of heat polymerized synthetic resins of the heat-settable type without the addition of a volatile thinner.

2,153,697. Dyed paper and process of making the same. Laurence W. Porter, assignor to S. D. Warren Company, Boston, Mass. Filed Aug. 20, 1936. 10 claims. (Cl. 8-7). The improvement which consists in incorporating into the paper, at a stage not earlier than the dyeing step, an ammoniacal solution of an agent of the group consisting of oxides and hydroxides of metals of the group containing magnesium, beryllium, cadmium, mercury and zinc.

2,153,723. Floor covering material and coating therefor. Robert H. Pohl, assignor to Sloane-Blabon Corporation Philadelphia, Pa. Filed Nov. 6, 1936. 11 claims. (Cl. 91-68). A feet base impregnated with a bituminous material and an exposed flexible paint comprising an alkali silicate binder, inorganic pigments, and a rosin oil and rubber.

2,153,848. Method of forming envelopes. James J. Shea and William F. Irrgang, assignors to United States Envelope Company, Springfield, Mass. Filed April 22, 1936. 4 claims. (Cl. 93-63). Method of forming web-cut envelopes.

2,154,201. Manufacture of surfaced felted sheets. Orcutt W. Frost, assignor to Wood Conversion Company, Cloquet, Minn. Filed March 23, 1936. 2 claims. (Cl. 92-39). Forming a felt on a screen from a uniform slurry of pulp after partially dewatering, disturbing the top layer by displacing portions of the felt to produce permanent variations on the surface of the felt, thus forming a flat, rigid board while simultaneously pressing the high spots to the same level, whereby the treated surface is uneven and the sheet has a uniform caliper.

2,154,219. Lithograph plate. Joe V. R. Shepherd, Needham, Mass. Filed June 28, 1935. 3 claims. (Cl. 101-401.1). A water-repellant paper base coated with casein, clay and formaldehyde; the coating possesses an affinity for lithography water and grease.

2,154,400. Stable casein solution. Carl Iddings, Staten Island, N. Y., assignor to The Muralo Company, Inc. Filed Dec. 8, 1933. 21 claims. (Cl. 134-12). A casein solution characterized by its stability and uniform viscosity over long periods of time, having a pH value of 8 to 9.

April 18, 1939

2,154,506. Manufacture of blue-print sheets. Walker M. Hinman and Walter G. Hollmann, assignors to The Frederick Post Company, Chicago, Ill. Filed March 8, 1937. 15 claims. (Cl. 95-6). Method of sensitizing blueprint paper.

2,154,719. Vacuum forming paper making machine. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed Sept. 9, 1935. 7 claims. (Cl. 92-43). Apparatus for moving paper stock with the forming surface so that little or no relative movement exists between the stock pond and the forming surface.

2,154,743. Apparatus and method for creasing bags. Walter F. Habas and Hans A. Bauer, assignors to B. F. Gump Co., Chicago, Ill. Filed Dec. 31, 1937. 16 claims. (Cl. 93-6). Apparatus for creasing the end walls of a bag.

2,154,825. Machine for making laminated containers. Swan Smith, assignor to David C. Shepard, St. Paul, Minn. Filed Sept. 18, 1936. 41 claims. (Cl. 93-79).

2,154,940. Apparatus for the manufacture of indented corrugated paper products. Charles Quincy Ives, assignor to Sherman Paper Products Corporation, Newton, Mass. Filed Nov. 9, 1937. 2 claims. (Cl. 154-30). Indenting the corrugations of the corrugated paper ply of a single-faced corrugated paper sheet and thereby rendering said sheet readily flexible across its corrugations.

2,154,948. Method and apparatus for blunging and decolorizing clay or the like. Sanford C. Lyons, assignor to Bird Machine Co., Walpole, Mass. Filed May 8, 1937. 12 claims. (Cl. 204-1). A method of treating clay carrying colored impurities of the nature of ferric oxide in an acid suspension containing an electrolyte which is capable of generating nascent reducing agent at a cathode and reducing ferric iron to the ferrous state.

2,154,949. Art of extruding moist plastic material. Sanford C. Lyons, assignor to Bird Machine Co., Walpole, Mass. Filed May 12, 1937. 5 claims. (Cl. 204-1).

2,154,950. Method of making boxes. Kenneth W. Macdonald, Watertown, Mass. Filed Dec. 16, 1936. 8 claims. (Cl. 93-39).

2,154,953. Tube making machine. Christian Majer, Tubingen-on-the-Neckar, Germany. Filed July 23, 1938. 7 claims. (Cl. 271-27).

2,154,995. Manufacture of calcium sulphite filled paper. Francis G. Rawling, assignor to West Virginia Pulp & Paper Company, New York, N. Y. Filed Dec. 17, 1934. 9 claims. (Cl. 92-21). Paper is beaten in water containing a water-soluble non-reducing salt of an

acid whose calcium salt is less soluble in water than calcium sulphate to offset the conversion of calcium sulphite to calcium sulphite.

2,154,996. Manufacture of calcium sulphite filled paper. Francis G. Rawling, assignor to West Virginia Pulp & Paper Company, New York, N. Y. Filed June 24, 1938. 11 claims. (Cl. 92-21). Pulp is beaten in water containing a reducing agent in an amount effective for retarding oxidation of calcium sulphite to calcium sulphate in order to inhibit foaming.

2,155,083. Roll clearing. Pierre Drewsen, assignor to The Hinde & Dauch Paper Company, Sandusky, Ohio. Filed April 7, 1937. 10 claims. (Cl. 91-51). Means for preventing accumulation of coloring matter on the rollers by directing a fluid blast upon the margins of the areas and tending away from them.

2,155,118. Match packet manufacturing machine and method. Paul Wilhelm Dietmann, Jonkoping, Sweden. Filed May 7, 1936. 20 claims. (Cl. 93-2).

April 25, 1939

R21,057. Conversion of starchy polysaccharides. George V. Caesar, assignor to Stein, Hall & Company, Inc. New York, N. Y. Original No. 2,131,724, dated Oct. 4, 1938. Application for reissue Dec. 29, 1938. 14 claims. (Cl. 127-33). Heating starch with urea.

2,155,656. Manufacture of envelopes. Lynn O. Hayes, St. Louis, Mo. Filed Aug. 1, 1936. 3 claims. (Cl. 93-61). Method of making relatively irregular, differently sized envelopes from blanks of uniform size and shape.

2,155,731. Paper treatment. Harold S. Mitchell, assignor to Industrial Patents Corporation, Chicago, Ill. Filed Sept. 13, 1935. 1 claim. (Cl. 91-68). Method of treating paper stock for use in packaging products containing fats and oils which consists in incorporating a citric acid solution in the paper stock.

2,156,046. Paper window shade capable of transmitting light uniformly. Cornelius Anthony Alt, assignor to E. I. de Pont de Nemours & Company, Wilmington, Del. Filed Nov. 11, 1936. 4 claims. (Cl. 91-67.9). A strong paper (about 0.007 inch thick) is embossed to simulate woven fabric and coated with a pigmented cellulose derivative coating composition.

2,156,083. Adhesive coated tape. Harold R. Dalton, assignor to Postal Telegraph-Cable Company (New York), New York, N. Y. Filed April 2, 1935. 7 claims. (Cl. 91-68). The adhesive coating is applied to the paper, etc., in moist condition and then applying a film of metallic soap to the coating before it is dry; the film-covered coating is then dried.

2,156,159. Process of making lignin. Edgar T. Olson, Raphael Katzen and Richard H. Plow, assignors to Northwood Chemical Company, Phelps, Wis. Filed May 17, 1938. 7 claims. (Cl. 260-124). Lignin-cellulose material is heated with 7 to 10 parts of 4-5 per cent sulphuric acid at 165 to 280 degrees C. under pressure for 2 to 5 minutes and the lignin is recovered by filtration.

2,156,160. Lignin molding compound. Edgar T. Olson and Richard H. Plow, assignors to Northwood Chemical Company, Phelps, Wis. Filed May 17, 1938. 5 claims. (Cl. 106-39). Lignin, prepared as in 2,156,159, is mixed with an organic plasticizer.

May 2, 1939

R21,072. Paper-cup-making machine. Edwin G. Wessman and Henry A. Stone, assignors to Dixie-Vortex Company, Chicago, Ill. Original No. 1,766,420, dated June 24, 1930. Application for reissue Sept. 3, 1938. 168 claims. (Cl. 93-39.3).

2,156,286. Method and apparatus for making building materials or the like. Norman P. Harshberger, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed June 15, 1935. 15 claims. (Cl. 91-44). A device for applying a wet cement composition to a roofing base or the like.

2,156,308. Art of manufacturing cement-fibrous products. Charles H. Schuh, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed Jan. 26, 1935. 10 claims. (Cl. 92-21). Substantially gelatinous fibrous material (produced by mechanical pulping) is mixed uniformly with cement particles (the fibers maintain the cement in suspension) and the mixture is formed into a sheet.

2,156,310. Asbestos cement shingle and process of making the same. Charles Schuh, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed Jan. 23, 1936. 21 claims. (Cl. 92-21). A hydraulic cement-fiber shingle containing microscopic voids and having paraffin distributed throughout the cement-fiber mixture.

2,156,311. Cement fiber product. Charles H. Schuh, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed April 9, 1938. 10 claims. (Cl. 92-21). A compressed cement-fiber composition comprising cement particles and finely beaten fibrous material substantially in the form of individual fibers of an average length of about 1/20 inch; at least 30 per cent of the volume consists of uniformly distributed microscopic voids.

2,156,320. Fiber pulp refiner. Daniel Manson Sutherland, Jr., assignor to Lionel M. Sutherland, Trenton, N. J., and Douglas G. Sutherland, Morrisville, Pa. Filed April 1, 1936. 9 claims. (Cl. 92-26). A method of gaging and setting the refining gap or working clearance between relatively revolving refiner disc members.

2,156,321. Fiber pulp refiner. Daniel Manson Sutherland, Jr., assignor to Lionel M. Sutherland, Trenton, N. J., and Douglas G. Sutherland, Morrisville, Pa. Filed April 1, 1936. 14 claims. (Cl. 92-26). Coaxial refining members with opposed coacting working faces parallel and enlarging outward around their axes—one working face having concentric sections including a section of rubber-like friction material for rubbing fibers in the pulp and a metal face for splitting over-sized fibers.

2,156,328. Confectionery wrapper and method of packaging confectioneries. Cesare Barbieri, assignor to Dixie-Vortex Company, Chicago, Ill. Filed March 27, 1937. 7 claims. (Cl. 99-180). A blank for a conical cup for receiving a frozen confection.

2,156,380. Adhesive sheeting. Richard Gurley Drew, assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn. Filed Feb. 18, 1938. 12 claims. (Cl. 91-68). Raw rubber and low-acid type ester gum are used as an adhesive, giving a highly coherent and normally tacky and pressure-sensitive coating.

2,156,382. Method for treating composition boards. John Ferla, New York, N. Y. Filed Feb. 17, 1937. 4 claims. (Cl. 91-70). A method for drying composition boards and then applying a coating of paint on one surface only.

2,156,383. Method of an apparatus for treating boards of composition material. John Ferla, New York, N. Y. Filed May 13, 1937. 7 claims. (Cl. 101-32). Method of imprinting a pattern on a composition board.

2,156,441. Carton and the sealing thereof. Victor Hugo Watson and Norman Victor Watson, Leeds, England. Filed Jan. 3, 1938. 3 claims. (Cl. 93-6). Method of sealing cartons impregnated with wax proofing and having a pleated, tapered or like upper part.

2,156,445. Paper making apparatus. Burke M. Baxter, Detroit, Mich. Filed June 3, 1936. 1 claim. (Cl. 92-44). A nozzle for delivering pulp to high speed machines, divided into many contiguous passages and having valves for controlling the flow of pulp to the individual passages.

2,156,466. Method and apparatus for making packages. Clarence W. Vogt, assignor to Owens-Illinois Glass Company, Toledo, Ohio. Filed Nov. 27, 1935. 27 claims. (Cl. 93-3).

2,156,492. Coated abrasive. John F. A. Davis, Hamilton, Mass. Filed Nov. 8, 1937. 3 claims. (Cl. 51-185). The base is an unsized paper saturated with a water-soluble penetrating gum solution; this is bonded to a fabric and the abrasive material is bonded to the fabric.

2,156,558. Cover feeding and folding mechanism for booking machines. Charles F. Wright, assignor to The Diamond Match Company, New York, N. Y. Filed Oct. 30, 1937. 4 claims. (Cl. 93-2). Method for making match books.

2,156,643. Digester apparatus. William H. Shipman, assignor to The Babcock & Wilcox Company, Newark, N. J. Filed May 2, 1935. 14 claims. (Cl. 92-7). A digester having a recessed nozzle, a chip distributor, a relief line strainer ring seated within the nozzle recess and means on the ring for guiding the distributor into its operative position.

2,156,755. Coated fibrous sheet. Erich Gebauer-Fuelnegg, assignor to Marbo Patents, Inc., Chicago, Ill. Filed July 31, 1937. 4 claims. (Cl. 91-68). Vegetable parchment coated with a rubber hydrocholride and a resin, such as chlorinated diphenyls, polycumarones, rosin, copal, phenol-aldehyde resins, ester gums and dammar gum.

2,156,804. Mechanism for cutting and applying glue to sheet material. William C. Dorsch, assignor to American Seal-Kap Corporation, Long Island City, N. Y. Filed Nov. 27, 1936. 10 claims. (Cl. 91-14). Method for applying adhesive to an area of sheet material and to partially cut around and sever said area from the remainder of the sheet.

2,156,835. Separating member for jordan engines. Archer Le Roy Bolton, assignor to John W. Bolton & Sons, Inc., Lawrence, Mass. Filed April 16, 1935. 1 claim. (Cl. 92-27). A bodily transportable all-metal separator for a jordan engine having spaced paper stock treating members.

2,156,901. Method and apparatus for feeding and distributing sludgy materials. Thomas Bardy, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed Dec. 9, 1936. 22 claims. (Cl. 91-44). Apparatus for applying sludgy material to a surface.

2,157,018. Production of plastic compositions. Albert George Rodwell, assignor to Sydney Harrison Colton, London, England. Filed Oct. 5, 1937. 2 claims. (Cl. 106-23). A mixture of white cement in water, rubber latex containing vulcanizing ingredients and fibrous filler.

2,157,054. Method and apparatus for making protective covers or containers. John R. Gammeter, assignor to United States Rubber Company, New York, N. Y. Filed Sept. 1, 1936. 24 claims. (Cl. 93-8). Method for making containers of flexible sheet material rendered adhesive by the application of heat.

2,157,057. Process of making window shades. Samuel J. Johnson, assignor to Clopay Corporation, Cincinnati, Ohio. Filed Aug. 19, 1936. 1 claim. (Cl. 91-68). Method of coating a paper so as to obtain a plurality of doctored streaks of the coating material in parallel, the streaks being of substantial thickness and collectively providing a corduroy-like surface.

2,157,082. Felt. Tom Milnes, assignor to Ayers Limited, Lachute Mills, Quebec, Canada. Filed April 16, 1937. 1 claim. (Cl. 139-408). A three-ply asbestos dryer felt.

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2,157,212. Imprevious sheet material. George Arlington Moore, assignor to Humoco Corporation, Louisville, Ky. Filed Oct. 26, 1937. 8 claims. (Cl. 91-68). The fibrous material is coated with nitrocellulose lacquer which is dried, then with a wax film which is hardened and then with a second nitrocellulose film.

2,157,213. Coating device for wet paper. William M. Nash, Chicago, Ill., assignor of one-fourth to Roy A. Nash, New Rochelle, N. Y., one-fourth to Mary Jones, Neenah, Wis., and one-fourth to Marie Duvall Nash, Neenah, Wis. Means for distributing a mobile coating material upon a flexible apron resting or dragging upon the upper foraminated surface of the dandy roll and a trough for retrieving the coating material which passes through the surface of the roll.

2,157,270. Apparatus to make metal reinforced loose-leaf paper sheets. Frank Stanley Schade, assignor to National Blank Book Company, Holyoke, Mass. Filed April 1, 1937. 13 claims. (Cl. 93-1).

2,157,286. Apparatus for coating textile material and the like. Charles Emmey, New York, N. Y. Filed Oct. 13, 1937. 6 claims. (Cl. 91-48). Apparatus for applying fusible material onto a receptive surface.

2,157,378. Freely flowing suspensions of pigments and other particles. Victor R. Abrams, East Orange, N. J., assignor to Sulfo Corporation of America. Filed June 10, 1936. 23 claims. (Cl. 134-58). Coating product of freely flowing suspension containing a hydrogenated castor oil wax and finely divided pigment particles.

2,157,380. Suspensions for coating and other purposes. Victor R. Abrams, East Orange, N. J., assignor to Sulfo Corporation of America. Filed July 10, 1938. 9 claims. (Cl. 134-39). A freely flowing pigment suspension comprising an organic liquid alkyl hydroxide, in which hydrogenated castor oil wax is lyophilic, and finely divided pigment particles.

2,157,410. Wrapper and system of producing same. M. T. Heller, assignor to Marshall & Ilsley Bank, Milwaukee, Wis. Filed April 5, 1937. 1 claim. (Cl. 91-67.9). Method of continuously producing commodity wrappers from thin non-transparent papers by printing and then coating the printing areas with a quick drying transparent varnish.

2,157,901. Coating composition and process of preparing same. Robert T. Hucks, assignor to E. I. du Pont de Nemours & Co., Wilmington, Del. Filed Aug. 24, 1937. 5 claims. (Cl. 134-79). A cellulose derivative and an iron ferrocyanide blue pigment ground in the presence of a blown oil.

2,157,944. Process of an apparatus for producing covering material. Alfred B. Walton, assignor to Certain-teed Products Corporation, New York, N. Y. Filed April 15, 1935. 36 claims. (Cl. 91-43). Process of applying comminuted material to a web.

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2,158,053. Press for cutting cardboard and scrap ejector therefor. Henri Bobst, Lausanne, Switzerland. Filed Nov. 9, 1937. 11 claims. (Cl. 164-89).

2,158,080. Apparatus for and method of screening. William J. Montgomery and Charles F. Boyers, assignors to The Champion Paper and Fibre Company. Hamilton, Ohio. Filed Jan. 30, 1936. 8 claims. (Cl. 210-167). Method of using a fine mesh screen to separate fine solid particles in liquid suspension from oversize particles.

2,158,087. Apparatus for imparting stretchability to webs. William Wallace Rowe and Warren A. Morris, assignors to The Paper Service Company, Lockland, Ohio. Filed March 16, 1936. 13 claims. (Cl. 154-30). A method of corrugating a web.

2,158,166. Container sealing method. Charles T. Walter, assignor to Industrial Patents Corporation, Chicago, Ill. Filed Oct. 27, 1937. 2 claims. (Cl. 91-68). Method of coating the end and adjacent inner peripheral edge of a tubular container body.

2,158,265. Leather pulp and products made therefrom. John Arthur Wilson, assignor to

Wilson Leather Company, Milwaukee, Wis. Filed Feb. 2, 1934. 11 claims. (Cl. 92-3). Pulp having a fibrous constituent of animal origin.

2,158,350. Match book making machine. William W. Allen, Beverly Hills, Calif. Filed March 5, 1934. 26 claims. (Cl. 93-2).

2,158,357. Process of making shingles. Clarence R. Eckert, assignor to The Barrett Company, New York, N. Y. Filed Dec. 24, 1935. 3 claims. (Cl. 91-68). Multi-colored strip shingles.

2,158,422. Manufacture of sensitized photographic printing paper and cloth. John Holden, Reddish, Stockport, England. Filed Feb. 26, 1938. 7 claims. (Cl. 95-6). Blueprint paper for the semi-dry development process is coated with a soluble iron salt, an iron-cyanogen compound, a buffer salt and soluble nitrite.

2,158,524. Method of treating paper containers. Roland K. Reed, Bonxville, N. Y. Filed Oct. 8, 1937. 5 claims. (Cl. 91-70). The container is subjected to a bath of moisture-proofing material at a temperature at least as high as the boiling point of water and then to a bath of paraffin or like material at a lower temperature.

2,158,560. Treatment of sheet material. Frederick K. Bezzenberger, assignor to The Standard Envelope Manufacturing Company, Cleveland, Ohio. Filed Jan. 28, 1936. 7 claims. (Cl. 91-70). Method of making one piece window envelopes.

2,158,663. Process for manufacturing soap. Carl Leyst-Küchenmeister, Schlachtensee, near Berlin, Germany. Filed Nov. 7, 1934. 4 claims. (Cl. 87-16). A fatty material in liquid state is saponified with waste sulphite lye derived from cellulose industries together with freshly prepared caustic soda lye.

2,158,688. Paper pastry cone. William H. Brooks, Fairfax, Calif. Filed Sept. 25, 1937. 1 claim. (Cl. 107-52). The cone is made of a tough but flexible sheet of paper.

2,158,754. Apparatus for the manufacture or production of laminated sheet material. Theodore A. Hodgdon, Whittingham, Vt. Filed Aug. 25, 1936. 3 claims. (Cl. 154-37). A method of laminating glassine paper with wax.

2,158,755. Laminated sheet material for use in making paper bags or wrappers. Theodore A. Hodgdon, Wilbraham, Mass., and Paul E. Hodgdon, Readsboro, Vt. Filed Sept. 16, 1936. 3 claims. (Cl. 154-46). A base of transparent glassine, a transparent wax coating covering one surface, its opposite surface having a transparent wax coating thereon, opaque glassine strips secured to the second coating at the opposite side edges but spaced apart at the center portion of the base member, rendering the center portion more transparent.

2,158,986. Clay product and process of preparing same. William T. Maloney, assignor to Georgia Kaolin Company. The treated clay is suitable for coating paper.

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2,159,007. Composite article and method for producing same. William Hale Church and Dorothy E. Bateman, assignors to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed July 31, 1934. 8 claims. (Cl. 91-68). A wrapping tissue of non-fibrous cellulosic base sheet with a transparent moisture-proof coating, the anchoring medium being a phenol-aldehyde resin and a urea-aldehyde resin.

2,159,029. Web-marking mechanism. Cutler D. Knowlton, assignor to Hoague-Sprague Corporation, Lynn, Mass. Filed July 20, 1937. 13 claims. (Cl. 93-93). The marking means is carried by one of the rolls.

2,159,151. Method of moistureproofing. Albert Hershberger, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed July 20, 1933. 15 claims. (Cl. 91-70). A method of preparing a thin, glass-clear transparent and glossy wax film by coating a base with molten wax.

2,159,152. Method of making moistureproof material. Albert Hershberger, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed July 20, 1933. 6 claims. (Cl. 91-70). A moistureproof material having a thin, glass-clear transparent and glossy coating comprised of a wax and a rubber or other compound of this type.

2,159,258. Method and apparatus for digesting fibrous or cellular material. Joaquin Julio de la Roza, Sr., Plandome, N. Y. Filed May 28, 1934. 20 claims. (Cl. 92-7). In a continuous digestion process the material is impregnated with an alkaline liquid, the air is removed from the compression zone and the material is passed to the digestion zone where it is treated with an acidic cooking liquid.

2,159,300. Insulating structural board. Armen H. Tashjian, assignor to William B. Miller, Lakewood, Ohio. Filed March 12, 1937. 10 claims. (Cl. 20-91).

2,159,317. Paper pulp consistency regulator. Edward L. Buchanan, assignor to The Appleton Machine Company, Appleton, Wis. Filed July 1, 1936. 5 claims. (Cl. 92-46). A head box having three compartments provided with progressively lower overflows.

2,159,411. Sulphite waste liquor-phenol-aldehyde condensation products. Frederick J. Wallace, assignor to Robeson Process Company, New York, N. Y. Filed June 11, 1935. 10 claims. (Cl. 260-57). The solids of sulphite waste liquors are condensed with a phenolic compound and formaldehyde, giving a resinous body water-resistant and non-bleeding in water.

2,159,586. Bituminized web. Harold W. Greider and George Arthur Fasold, assignors to The Philip Carey Manufacturing Company, Cincinnati, Ohio. Filed May 26, 1937. 4 claims. (Cl. 91-68). A roofing material.

2,159,587. Apparatus for making bituminized webs. Harold W. Greider and George Arthur Fasold, assignors to The Philip Carey Manufacturing Company, Cincinnati, Ohio. Filed May 26, 1937. 11 claims. (Cl. 91-24). An apparatus for impregnating and coating a web with bituminous material.

2,159,613. Adhesive. Paul B. Davidson and Julius R. Adams, assignors to Old Colony Envelope Company, Westfield, Mass. Filed April 18, 1935. 1 claim. (Cl. 134-23.4). The adhesive consists of acetic acid, water, dextrin and sorbitol.

2,159,638. Manufacture of molded, waterlaid fiber articles. Milton O. Schur, assignor to Brown Company, Berlin, N. H. Filed Oct. 22, 1935. 3 claims. (Cl. 92-57). Fiber and flocculated rubber are deposited from aqueous suspension on a porous, yarn-fabric mold, the product is dried, shaped and surfaced with fiber flock.

2,159,639. Artificial leather manufacture. Milton O. Schur, assignort to Brown Company, Berlin, N. H. Filed June 4, 1936. 3 claims. (Cl. 154-2).

2,159,641. Gumming machine. George W. von Hofe, assignor to New Jersey Machine Corporation, Hoboken, N. J. Filed Feb. 11, 1937. 5 claims. (Cl. 91-50).

2,159,675. Paper for nitration. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed June 11, 1936. 4 claims. (Cl. 260-222). A waterleaf nitration paper of substantially unbeaten, bleached sulphite hardwood pulp with an alpha cellulose content of not greater than about 90 per cent, the paper being uniformly textured, having a compactness of at least 60 and a thickness not exceeding 0.01 inch.

2,159,704. Cigarette and method of making the same. Harold Alvin Levey, New Orleans, La. Filed May 4, 1937. 11 claims. (Cl. 131-39). Method of waterproofing cigarette paper to form a tip film on the finished cigarette.

2,159,743. Cellulosic structure and method for preparing same. George H. Latham and James K. Hunt, assignors to E. I. du Pont de Nemours & Co., Wilmington, Del. Filed June 18, 1935. 5 claims. (Cl. 99-171). Regenerated cellulose pellicle is treated with a mold inhibitive agent of the clas of formaldehyde and thioformaldehyde.

2,159,853. Machine for making cross-bottom paper bags. Bror Anders Emil Johnson, assignor to Aktiebolaget Gerh. Arehns Mekaniska Verkstad, Stockholm, Sweden. Filed March 11, 1938. 5 claims. (Cl. 93-28).

2,159,899. Utilization of the heat content of hot residual liquors. Bertold Kranz, assignor of one-half to Zellstofffabrik Waldhof, Mannheim-Waldhof, Germany. Filed Nov. 28, 1935. 1 claim. (Cl. 202-49). A method for carrying out distillations.

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R21,098. Paper manufacturing. George S. Carroll, Bennington, N. H. Original No. 2,064,647, dated Dec. 15, 1936. Application for reissue July 15, 1938. 7 claims. (Cl. 34-24). Method of drying to obtain a sheet with little tendency to curl.

2,160,008. Method of and machine for sealing boxes or cartons. John Van Buren, Brooklyn, N. Y. Filed Nov. 11, 1937. 12 claims. (Cl. 93-6).

2,160,391. Bleaching process and composition. Joseph S. Reichert, Wilbie S. Hinegardner and Howard L. Potter, assignors to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed Feb. 24, 1936. 11 claims. (Cl. 8-111). Hydrogen peroxide containing from 0.025 to 0.14 gram of magnesium as magnesium silicate.

2,160,500. Method of recovering metals and paper. Ludwig Halberstadt, Halle, Germany. Filed Sept. 23, 1936. 1 claim. (Cl. 92-9). Aluminum foil paper is treated with acetic acid and mercuric chloride, by which the metal is dissolved without altering the structure of the paper.

2,160,759. Spiral tube winding machine. Henry De Smith, assignor to M. D. Knowlton Company, Rochester, N. Y. Filed June 2, 1938. 12 claims. (Cl. 93-80).

2,160,787. Method of forming thick butt shingles. Ralph W. B. Reade, assignor to United States Gypsum Company, Chicago, Ill. Filed Sept. 30, 1935. 9 claims. (Cl. 91-68). Different thicknesses of coating are applied.

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2,161,025. Coating composition. Arthur K. Doolittle, assignor to Carbide and Carbon Chemicals Corporation, New York, N. Y. Filed Sept. 10, 1936. 4 claims. (Cl. 260-17). A vinyl resin especially adapted for application by brushing.

2,161,045. Bleaching. Wilhelm Hirschkind, David J. Pye and Earl G. Thompson, assignors to The Dow Chemical Company, Midland, Mich. Filed June 1, 1937. 12 claims. (Cl. 8-106). Pulp in an oxidizing bleach is irradiated with light waves all substantially longer than 300 millimicrons.

2,161,055. Recovery of SO_2 from ammonium sulphite solutions. Henry F. Johnstone and Alamjit D. Smith, assignors to Commonwealth Edison Company, Chicago, Ill. Filed Aug. 24, 1936. 15 claims. (Cl. 23-178).

2,161,056. Process for recovering sulphur dioxide from waste gases. Henry F. Johnstone and Alamjit D. Smith, assignors to Commonwealth Edison Company, Chicago, Ill. Filed March 24, 1937. 5 claims. (Cl. 23-178). Sulphur dioxide is absorbed in an aqueous solution of sodium sulphite and bisulphite and precipitated as zinc sulphite.

2,161,083. Laminated fiber-rubber sheet material and articles made therefrom. Allen F. Owen, assignor to Latex Industries, Inc., Beaver Falls, N. Y. Filed March 18, 1936. 1 claim. (Cl. 154-46). A shoe counter composed of laminated sheet material from fibers and rubber.

2,161,092. Process and machine for making composite creped products. William Wallace Rowe, assignor to The Paper Service Company, Lockland, Ohio. Filed Aug. 5, 1935. 13 claims. (Cl. 154-33). Method of forming a composite web from a plurality of individually coated webs which have been creped in one direction and creping the composite web in an opposite direction.

2,161,110. Method of and apparatus for burning waste liquor. George H. Tomlinson and Leslie S. Wilcoxson, said Wilcoxson assignor to The Babcock & Wilcox Company, Newark, N. J. Filed May 16, 1935. 28 claims. (Cl. 23-48). Method of introducing waste liquor in a relatively flat spray in a vertical recovery furnace so that a major portion of the spray particles impact on and adhere to a vertical arresting surface exposed to the temperature conditions in the furnace after passing through and being heated by an ascending stream of high temperature gases.

2,161,11. Spray nozzle. Leslie S. Wilcoxson and Frederic G. Ely, assignors to The Babcock & Wilcox Company, Newark, N. J. Filed May 25, 1935. 16 claims. (Cl. 299-74). A spray for burning waste liquors according to 2,161,110.

2,161,224. Manufacture of articles molded from cellulosic fibrous pulp. Ivar Bjarne Berghoff, Stockholm, Sweden. Filed Feb. 15, 1937. 5 claims. (Cl. 18-48). Pulp is mixed with alum and a binding substance having hydrophobe character and dried, the fibers reloosened in part, mixed with a binding agent and shaped under heat.

2,161,288. Manufacture of tanning substances. Rudolf Fingado and Hans Hertlein, assignors to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany. Filed Sept. 27, 1937. 8 claims. (Cl. 149-5). Lignosulphonic acid or a salt is treated with a condensation product of an aromatic hydroxy compound (phenols and naphthols) and a carbohydrate.

2,161,479. Wrapper tube forming machine. Vern R. Luce, Los Angeles, Calif. Filed April 12, 1938. 12 claims. (Cl. 93-18).

2,161,650. Manufacture of barium sulphate. Lincoln T. Work and Hugh Alessandroni, New York, N. Y. Filed Dec. 27, 1934. 4 claims. (Cl. 23-122). Barium sulphate in finely divided form.

2,161,651. Manufacture of finely divided precipitates. Elliott J. Roberts and Ralph W. Shafor, New York, N. Y. Filed Dec. 27, 1934. 3 claims. (Cl. 134-58). Barium sulphate.

2,161,652. Manufacture of barium sulphate. Elliott J. Roberts, Westport, Conn. Filed Dec. 27, 1934. 4 claims. (Cl. 23-122). Precipitated barium sulphate.

2,161,653. Apparatus and method of producing vegetable fiber products. George H. Ellis, assignor to The Insulite Company, Minneapolis, Minn. Filed Nov. 9, 1935. 5 claims. (Cl. 92-39). The board is passed through a rotatable walled pressing passage in which the temperature decreases from 1100 to 700 degrees F. on one side and from 500 to 350 degrees F. on the other.

2,161,654. Protected vegetable fibrous material and method of making the same. George H. Ellis, assignor to The Insulite Company, Minneapolis, Minn. Filed Aug. 19, 1936. 6 claims. (Cl. 92-21). Water-soluble chlorinated phenol is mixed with rosin size, the mixture is added to the vegetable fibers in a water bath, zinc chloride is added to insolubilize the product and finally alum.

2,161,655. Method of making hard, dense, fibrous, boardlike product. George H. Ellis, assignor to The Insulite Company, Minneapolis, Minn. Filed Oct. 30, 1936. 7 claims. (Cl. 92-21). From 5 to 20 per cent of fibers with a freeness of 40 to 80 is mixed with fibers in a water suspension having a freeness of 500 to 700, a board is formed and subjected to heat and pressure.

2,161,748. Molding process and material. Nicholas N. T. Samaras and Mark Plunguian, assignors to The Mead Corporation, Chillicothe, Ohio. Filed June 29, 1935. 6 claims. (Cl. 106-39). A lignin material which has an oven dry melting point of about 220-230 degrees C. is treated with moisture as a modifying agent in excess of about 8 to 12 per cent thereof to reduce the melting point of the lignin; it is used as a molding material.

2,161,749. Molding process and materials. Nicholas N. T. Samaras and Mark Plunguian, assignors to The Mead Corporation, Chillicothe, Ohio. Filed Feb. 4, 1939. 6 claims. (Cl. 106-39). Furfural is used as a modifying agent for lignin in order to reduce its melting point.

2,161,755. Manufacture of titanium pigments. Robert William Ancrum and Assur Gjessing Oppegaard, assignors to Titan Company, Inc., Wilmington, Del. Filed July 22, 1937. 9 claims. (Cl. 134-58).

2,161,763. Process of making paper pulp. Edwin P. Jones, assignor to Champagne Paper Corporation, New York, N. Y. Filed Oct. 6, 1937. 1 claim. (Cl. 92-13). Method of pulping flax or hemp tow by first steaming at 60 to 80 pounds for 25 to 40 minutes and then digesting with 10 to 20 per cent of sodium hydroxide and 0.5 to 4 per cent of sulphur (dry weight of the tow).

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2,161,877. Mechanism for aperturing cartons. Francis X. Malocsay, Upper Saddle River, N. J. Filed Nov. 10, 1938. 26 claims. (Cl. 164-34).

2,161,972. Material for manufacturing paper collars and the like. Wilhelm Müller and Adolf Closmann, assignors to Atlas Ago Chemische Fabrik, Aktien-Gesellschaft, Molkau, near Leipzig, Germany. Filed Feb. 17, 1936. 6 claims. (Cl. 154-46). A paper collar has a body consisting of a soft and yielding base of fibrous cellulosic material having relatively long fibers embedded therein forming the inner surface of said collar, and a strong and dense fibrous cellulosic covering layer firmly bonded to said base forming the outer surface; it is free from brittleness and can be sharply bended without wrinkling or cracking.

2,161,975. Titanium dioxide pigments. Karl Walter Petersen, assignor to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany. Filed Jan. 8, 1937. 9 claims. (Cl. 134-58). Titanium dioxide is stirred with a solution of a basic aluminum salt.

2,161,989. Flat screen. Donald M. Waterous, assignor to Waterous, Ltd., Brantford, Ontario, Canada. Filed July 29, 1936. 5 claims. (Cl. 92-32). In a flat screen including a vat, a screen, a diaphragm and a diaphragm plate, a diaphragm operating eccentric and a flexible strap rigidly attached to the eccentric and plate to depress the plate and resilient means for supporting the plate and returning it to its uppermost position.

2,161,990. Decorative method and product. Benjamin Asnes, assignor to Dennison Manufacturing Company, Framingham, Mass. Filed July 12, 1937. 13 claims. (Cl. 41-24). Creped paper is embossed and coated with light-reflecting particles.

2,162,028. Cellulose ether coating composition. Irving E. Muskat, assignor to Pittsburgh Plate Glass Company, Allegheny County, Pa. Filed June 25, 1938. 11 claims. (Cl. 134-79). Ethylcellulose, diamylnaphthalene, titanium dioxide and solvents.

2,162,097. Cylinder paper machine. Walter W. Metcalf, Hoosick Falls, N. Y. Filed March 17, 1936. 6 claims. (Cl. 92-43). Means for delivering stock to a cylinder mold, means for indicating the flow velocity of the stock and means for varying this velocity.

2,162,336. Compound drier for coated disks. Charles A. Johnstone, assignor to Pacific Can Company, San Francisco, Calif. Filed Sept. 7, 1937. 7 claims. (Cl. 34-11).

2,162,403. Paper making apparatus. Charles Willmott Howard, assignor to The Black-Clawson Company, Hamilton, Ohio. Filed Jan. 15, 1937. 4 claims. (Cl. 15-93). A series of spaced edged blades carried by a frame and arranged in a series one above the other for engagement with one side of a web and a second series for engagement of the opposite side of the web.

2,162,430. Paper handling mechanism. Hans Hefti, assignor to The Appleton Coated Company, Appleton, Wis. Filed Aug. 17, 1938. 5 claims. (Cl. 164-68). A rotary cutter and sorting table.

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2,162,769. Coated sheet material. Floyed E. Williams, assignor to Marabon Corporation, Gary, Ind. Filed Nov. 20, 1937. 4 claims. (Cl. 91-68). Use of crystalline rubber hydrochloride on both sides and amorphous rubber hydrochloride on one side only.

2,162,781. Coating apparatus. Wilbur L. MacKenzie, assignor to United Shoe Machinery Corporation, Paterson, N. J. Filed Feb. 27, 1936. 14 claims. (Cl. 12-80).

2,162,943. Felt making process. Pierre Drewsen, assignor to The Barrett Company, New York, N. Y. Filed Nov. 16, 1935. 2 claims. (Cl. 92-3). Straw is cooked with 10 per cent of caustic soda at 90 to 100 degrees C. and the pulp is mixed with strong wood fibers.

2,162,947. Method of covering a cylinder roll. Charley L. Gleeson, North Arlington, N. J. Filed Aug. 30, 1937. 2 claims. (Cl. 245-10).

2,163,037. Manufacture of dry-sealing envelopes. Vincent E. Heywood, assignor to United States Envelope Company, Springfield, Mass. Filed March 24, 1936. 41 claims. (Cl. 93-62).

2,163,038. Manufacture of dry-sealing envelopes. Vincent E. Heywood, assignor to United States Envelope Company, Springfield, Mass. Filed Aug. 13, 1936. 16 claims. (Cl. 93-62).

2,163,063. Machine for making corrugated articles. Hippolyte W. Romanoff, New York, N. Y. Filed Aug. 11, 1937. 2 claims. (Cl. 154-30).

2,163,085. Flameproofed cellulosic materials. Martin Eli Cupery, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed Sept. 15, 1938. 14 claims. (Cl. 91-68). The fire retardant is the reaction product of phosphorous pentoxide with anhydrous liquid ammonia.

2,163,163. Self-adjusting felt roll for paper machines. Milton T. Weston, Red Bank, N. J. Filed April 22, 1938. 6 claims. (Cl. 34-48).

2,163,228. Soap package. Joseph H. Jorling, assignor to The McDonald Printing Company, Norwood, Ohio. Filed March 15, 1939. 4 claims. (Cl. 87-23). The wrapping material is provided on one side with a heat-seal coating and on the other side with a moisture-, acid- and alkali-resistant coating of vinyl resin.

2,163,265. Machine for manufacturing bag tubes. Harry E. Townsend, assignor to Bartlett Arkell, New York, N. Y. Filed July 1, 1933. 49 claims. (Cl. 93-81).

2,163,278. Bag sealing machine. Charles T. Hayes, assignor to James River Paper Products, Inc., Richmond, Va. Filed July 31, 1937. 18 claims. (Cl. 93-27).

2,163,316. Method and apparatus for making containers. Harry C. Fisher and James F. Thompson, assignors to The Gardner-Richardson Company, Middletown, Ohio. Filed April 10, 1937. 10 claims. (Cl. 93-39.1).

2,163,317. Production of sealed containers. Rudolf William von Sydow and Walter E. Sooy, assignors to The Gardner-Richardson Company, Middletown, Ohio. Filed Sept. 21, 1937. 24 claims. (Cl. 93-39.1).

2,163,318. Manufacture of containers and the like. Lino Scusa and Rudolph Kilian, assignors to The Gardner-Richardson Company, Middletown, Ohio. Filed Sept. 23, 1937. 45 claims. (Cl. 93-81).

2,163,372. Method of forming duplexed webs. Edmund Claxton and Herbert Paschke, assignors to Armstrong Cork Company, Lancaster, Pa. Filed Oct. 20, 1936. 9 claims. (Cl. 154-2).

2,163,385. Calcium sulphate pigments. Roy W. Sullivan, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed Sept. 30, 1937. 4 claims. (Cl. 23-122).

2,163,437. Screen for digesters. Harry H. Richmond, assignor to Electric Steel Foundry Company, Portland, Oreg. Filed Feb. 24, 1936. 1 claim. (Cl. 92-7). A plurality of arcuate, perforated, channel-shaped screen sections adapted to be united into a complete circular screen.

2,163,445. Bitumen dispersions and process of making same. Leonard Gowen Gabriel and John Frederic Thomas Blott, assignors to The Flintkote Company, New York, N. Y. Filed July 31, 1935. 9 claims. (Cl. 134-1).

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2,163,585. Pulp molding machine. Merle P. Chaplin, assignor to The Canal National Bank of Portland, Portland, Maine. Filed Aug. 14, 1926. 70 claims. (Cl. 92-56).

2,163,712. Coating machine. Walter V. Shearer, assignor to The Beveridge-Marvellum Company, Holyoke, Mass. Filed April 22,, 1938. 4 claims. (Cl. 91-18). Machine for applying thermoplastic coatings to webs of paper.

2,163,757. Apparatus for weatherproofing composition board. Robert S. Maclean and Charles W. Pollard, assignors to Mastic Asphalt Corporation, Michigan City, Ind. Filed Nov. 17, 1934. 18 claims. (Cl. 91-43). Coating apparatus for applying hot thermoplastic coating and a layer of grit.

2,163,806. Apparatus for folding over ends of paper tubes. Lee D. Pierce, Fulton, N. Y. Filed April 6, 1937. 5 claims. (Cl. 93-36.5).

2,164,040. Method for the decomposition of raw cellulose. Fritz Offermanns, Muskau, Oberlausitz, Germany. Filed July 21, 1936. 1 claim. (Cl. 92-6). A continuous process for decomposing woody materials with soda liquor at 150 to 220 degrees C. and 6 to 12 atmospheres, refining and again subjecting it to the action of soda liquor.

2,164,141. Causticization of soluble sulphides. Hugh Kelsea Moore, assignor to Brown Company, Berlin, N. H. Filed June 23, 1936. 2 claims. (Cl. 23-185). Causticizing an alkali metal monosulphide solution with copper oxide.

2,164,142. Method of and means for filtering finely divided solids from fluid suspension. Hugh Kelsea Moore, assignor to Brown Company, Berlin, N. H. Filed June 23, 1936. 12 claims. (Cl. 210-199). Means of filtering precipitated lime sludge.

2,164,192. Method of making paper from wheat, oat or rye straw. Arnold J. Marcham and Norris Reynolds, Carlyle, Ill., assignors of 10 per cent to Ben O. Zillman, St. Louis, Mo. Filed June 23, 1933. 2 claims. (Cl. 92-13). A batch of straw is pre-softened with water or steam, cooked with alkali and passed (unwashed) through a paper-forming means; the last liquid is used to pre-soften a successive batch of straw.

Forests in Europe To Be Studied

Professor Nelson C. Brown, of the New York State College of Forestry at Syracuse University will continue his studies of community forests in Europe this summer. In 1937 Professor Brown inaugurated these studies and was engaged by the U. S. Forest Service, during his sabbatical leave last year, to develop a program of community forests for this country. During the past 30 years more than 1500 community forests have been established in this country. New York has more than 500 on which 70,000,000 trees have been planted.

Professor Brown, as last year, is traveling under an Oberlaender Trust fund which has sent a few American foresters to Europe to study methods of procedure. Forestry in Europe has been widely accepted for about 1,000 years. Community forests are the most popular, profitable and successful phases of the forestry program in Europe, because forestry has reduced taxes in so many communities, says Professor Brown.

He sailed on July 7 on the S. S. *Laconia* for Liverpool. After a few days at Oxford and London with the British Forestry Commission he will go to Paris to confer with the Director General of Forests and Waters, then to Germany, Switzerland and lower Austria and Bohemia. He will talk with Dr. Adelbert Ebner of the University of Munich and Dr. F. A. Von Monroy, one of the chief foresters of Germany.

He will present a paper on the American methods of Classifying and Grading Lumber before the International Congress on Timber Utilization at Zurich, Switzerland in early September. This will be attended by representatives of 40 nations, according to Professor Brown.

Instrumentation Studies. XXXI

The Schopper Bending Endurance Tester

By The Staff of The Institute of Paper Chemistry

Abstract

The Schopper bending tester gives results which are roughly comparable with those of the common instruments for measuring fold endurance. However, it is more flexible in its application, due to the fact that both the arc of bending and the tension applied to the test strip can be varied. This would be particularly useful for increasing the sensitivity of the test when applied to weak papers and for reducing the time consumed in testing samples of high endurance. The effect of changing these variables has been studied, and empirical equations involving their separate and combined effects have been developed.

All devices which have been developed for measuring the fold endurance of paper operate on the same general principle, which involves applying both a folding and a tensile stress. In one test the sample is folded double and creased by means of a heavy roller. The tensile strength in the direction perpendicular to the crease is then measured as a separate operation. In the more common methods, however, both stresses are applied simultaneously; the sample is folded back and forth while under constant tension, until complete failure occurs. The difficulty encountered in all methods is that the area of the sample actually subjected to the test is very small; it consists of a thin section across the sample strip at the axis of folding. Due to variation in thickness and formation of the paper from one such minute section to the next, the fold endurance values obtained frequently are very inconsistent, and a large number of tests must be made before a representative value can be determined. Since from the standpoint of actual test area there is little difference between the various instruments, they must be compared according to the manner in which they apply the folding and tensile stresses.

The construction and operation of the Schopper Bending Endurance Tester (Fig. 1) have been described by Schopper[1] and by Korn.[2] It is a device for repeatedly bending a strip of material which is under constant tension. The strip is held in a vertical position, and gripped by two jaws at either end. From the lower clamping assembly are suspended the weights which produce the tension. The bending is accomplished by means of the upper jaw, which oscillates through a variable arc. Supposedly, this upper assembly can be so fixed that the strip is bent about a stationary axis, which coincides with the end of the jaw. The radius of each rounded tip of this jaw is 0.01 mm. The arc through which the free end of the strip is turned can be varied from about 10 to 180 degrees; the tension can be varied from a few grams to several kilograms. The standard width of the test strip is 15 mm.; the standard speed is 120 double bends per minute—considering the complete cycle through which the free end of the strip moves as one double bend.

In the Schopper fold tester, the sample under spring tension extends through a rectangular slot in a thin metal plate. As the plate reciprocates between two pairs of rollers, the sample is folded back and forth until it breaks under the tension. The arc of bending, which is fixed by the position of the rollers, is slightly less than 360 degrees. The tension is not constant, but varies from less than one kilogram at the neutral position to exactly one kilogram at the point of maximum displacement of the plate. The radius of curvature of the slot edges is stated[2] to be 0.25 mm.

The operation of the M. I. T. instrument is similar to that of the bending tester. The tension, however, is applied by means of a spring. The bending takes place through oscillation of the lower of two jaws which hold the sample in a vertical position. The radius of each curved tip of the clamp around which the sample is bent is 0.39 mm. The bending axis is not perfectly stationary; a slight up and down movement occurs during each half-cycle. Since the sample is grasped at a point considerably below the bending axis, there is no clamping pressure at the line of failure.

With the objective of evaluating the Schopper bending tester for the measurement of the folding strength of paper, the effects of the following factors involved in its operation were investigated:

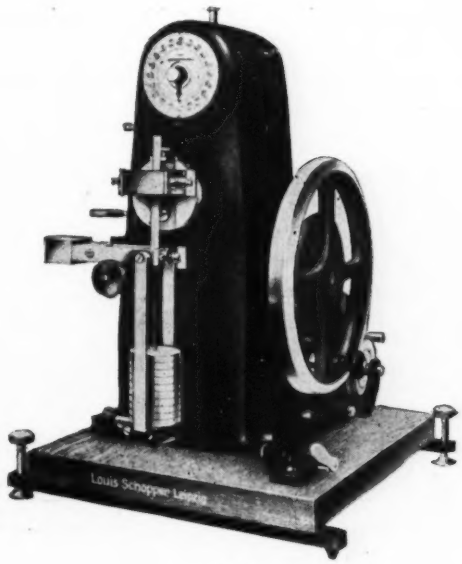


FIG. I.
The Schopper Bending Endurance Tester

(1) Schopper, Alfred, *Wochbl. Papierfabr.* 68, no. 6: 97-100; no. 7: 119-124 (Feb. 6, 13, 1937); *World's Paper Trade Rev.* 109, no. 14, *Tech. Suppl.*: 45-60 (April 8, 1938).

(2) Korn, R., *Papier-Fabr.* 35, no. 5: 33-7 (Jan. 29, 1937).

1. The pressure with which the free end of the strip is clamped in the oscillating jaw
2. The arc through which the bending takes place
3. The tension applied to the strip.

The weight and thickness of the samples used are given in Table I.

Shortly after the tests had been started it became apparent that the speed reduction from the motor pulley to the drive wheel of the instrument was too great to be accomplished in one step. As a result, the rubber tire on the counter wheel used for this transmission showed signs of excessive wear after a few tests. This fact was brought to the attention of the manufacturer.

TABLE I.—DESCRIPTION OF SAMPLES

Sample	Type of Paper	Ream Size and No. of Sheets	Basis Wt. lb.	Thickness in.
1	Groundwood book	25x38—500	45	0.0032
2	Offset book	25x38—500	70	0.0053
3	English finish book.....	25x38—500	60	0.0043
4	Supercalendered book...	25x38—500	60	0.0032
5	Folding coated enamel...	25x38—500	80	0.0058
6	Bristol	17x22—500	53	0.0087
7	Sulphite ledger	17x22—500	36	0.0065
8	Sulphite envelope	17x22—500	24	0.0043
9	Sulphite bond	17x22—500	20	0.0041
10	Sulphite bond	17x22—500	16	0.0033
11	Sulphite bond	17x22—500	20	0.0031
12	Rag ledger	17x22—500	32	0.0050
13	Rag bond	17x22—500	20	0.0045
14	Rag manifold	17x22—500	7	0.0016
15	Cover	20x26—500	67	0.0103
16	Tag	.....	..	0.0159
17	Test liner	.....	..	0.0176
18	Rope tag	.....	..	0.0107
19	Kraft wrapper	24x36—480	52	0.0054
20	Vegetable parchment ...	24x36—480	38	0.0031
21	Sulphite bond	17x22—500	20	0.0039

When relatively stiff samples, such as bristol, were used, it was practically impossible to center the axis of bending exactly. The mechanism with which the instrument was equipped permitted a vertical adjustment of the axis in relation to the center of the oscillating shaft. Although this adjustment made it possible to compensate to some extent for the bowing which took place in stiff material, there was a slight up and down movement of the lower clamping assembly during each half-cycle. This inevitably would cause some variation in the tension.

The Effect of Clamping Pressure

Since pressure is exerted by the upper clamp very near the bending axis, it was felt that the force with which this clamp was tightened might affect the results of the test. This factor was studied in the following manner. In one series, the jaw was tightened by hand just enough to prevent the strip from slipping; in a second series on the same samples it was tightened as far as possible by hand. Since these are the extremes of pressure which would be encountered in normal operation, it was felt that any effect would be revealed, at least qualitatively, by this procedure.

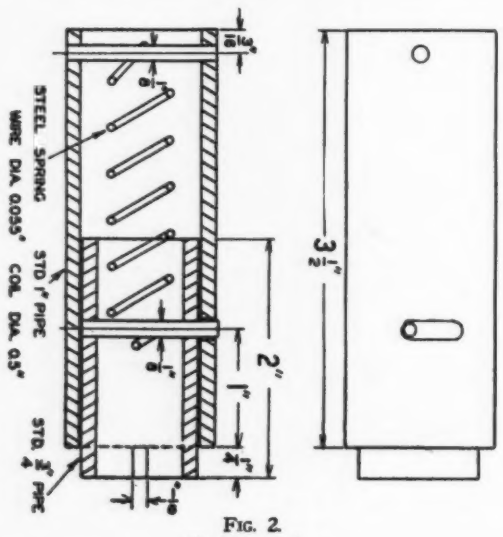


FIG. 2.
Clamping Device

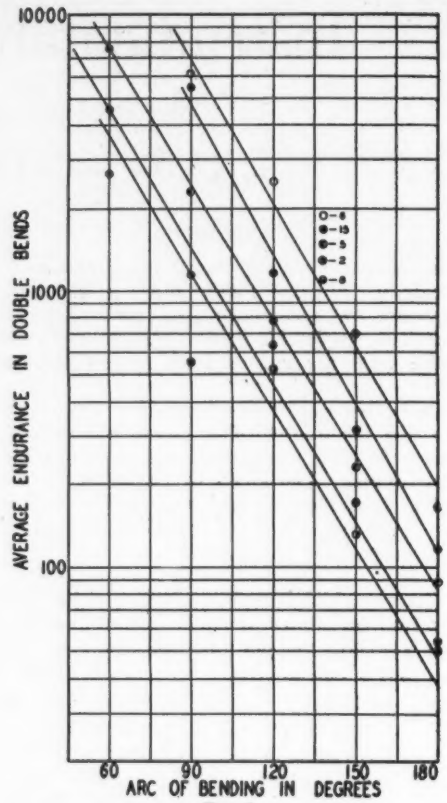


FIG. 3.
Log Bending Endurance *vs.* Bending Arc Machine Direction.

For the remainder of the tests, an attempt was made to secure constant clamping pressure. As shown in Fig. 2, a chuck was constructed of such dimensions that one end of it could grasp the clamping screw. The other end was inserted into a hollow

TABLE II.—THE EFFECT OF CLAMPING PRESSURE

In Direction: * Average of 20 tests.
Across Direction: Average of 10 tests.

Sample	2		6		9		15	
Direction	In	Across	In	Across	In	Across	In	Across
Light Clamping Pressure by Hand								
Av. Endurance (Double Bends)..	30	9	149	137	182	91	74	46
Av. Per Cent Deviation	27	30	58	43	38	65	24	17
Heavy Clamping Pressure by Hand								
Av. Endurance (Double Bends)..	29	17	121	153	232	270	86	43
Av. Per Cent Deviation	27	16	54	59	37	25	31	19
Clamping Pressure Produced by Spring								
Av. Endurance (Double Bends)..	51	29	167	288	208	285	119	45
Av. Per Cent Deviation	31	19	34	51	20	26	28	22

* When tests are made in the "in" direction, the samples are so cut that the axis of bending is perpendicular to the machine direction of the paper. When tests are made in the "across" direction, the axis of bending is parallel to the machine direction of the paper.

handle containing a spiral spring, one end of which was fixed in the handle, the other being attached to the chuck. For each strip, the clamping screw was tightened by means of this device until a definite distortion of the spring was produced.

In Table II, results obtained when strips were clamped in this manner are compared with the two degrees of manual tightening. Apparently there was no consistent difference, either in the average bending endurance, or in the reproducibility, between the light and heavy clamping pressures. It is difficult to explain, therefore, why the results obtained when the chuck was used were higher than in either of the other two series. It had been expected that these results would be of the same order as those obtained when the light clamping pressure was used, but that,

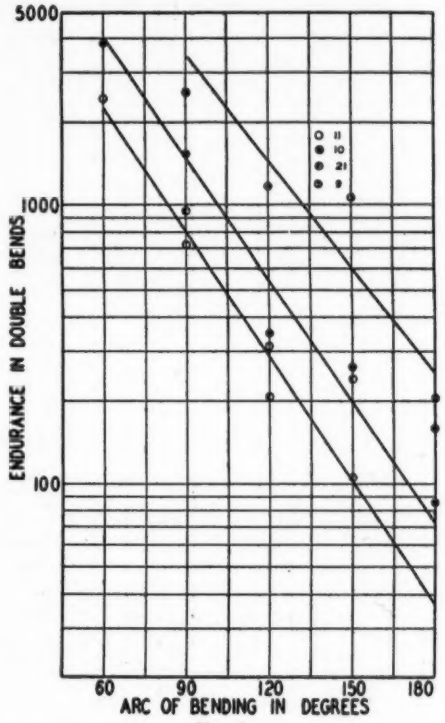


FIG. 4.

Log Bending Endurance vs. Bending Arc Machine Direction.

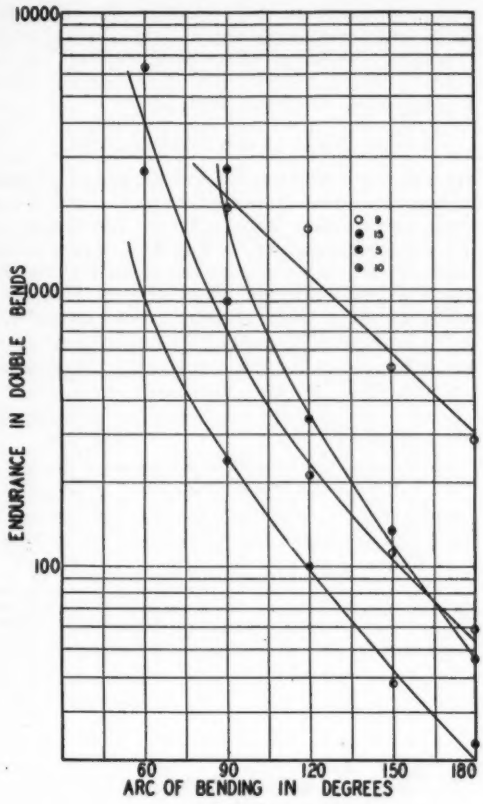


FIG. 5.

Log Endurance vs. Bending Arc Across Direction

TABLE III.—THE EFFECT OF THE BENDING ARC

Average of 10 Tests
Tension = 1 kilogram
Endurance in Double Bends
Arc of Bending in Degrees

Sample	180 degrees		150 degrees		120 degrees		90 degrees		60 degrees	
	In	Across	In	Across	In	Across	In	Across	In	Across
1	1.9	1.3	2.0	1.5	3.6	2.0	5.5	3.5	14	10
4	3.2	2.5	4.2	3.0	6.7	4.2	12.0	6.8	73	22
3	3.6	2.1	3.9	2.4	6.6	3.1	9.8	6.2	66	18
14	7.5	6.4	6.9	3.7	18.0	5.4	73.0	14.0	258	25
2	51	29	137	47	523	145	1140	551	4569	3299
8	54	38	171	72	635	286	542	603	2693	3809
10	84	59	264	112	348	210	1560	909	3805	6356
11	86	39	105	118	308	245	717	1030	2042	3736
5	90	23	230	38	780	100	2311	236	7809	2674
15	119	45	321	136	1163	344	5582	2773		
21	160	92	239	179	203	217	958	808		
6	167	288	698	337	2514	1440	6202	7045		
9	208	285	1081	517	1193	1680	2558	1970		

TABE IV.—EFFECT OF TENSION

Average of 10 strips; bending arc 180 degrees
Endurance in Double Bends

Tension in Kilograms....	0.25		0.50		0.75		1.00		1.25		1.50		2.00		3.00		Tensile Strength In Kilograms 15 mm. Strip		Stretch In Per Cent	
Sample	In	Across	In	Across	In	Across	In	Across	In	Across	In	Across	In	Across	In	Across	In	Across	In	Across
1.....	403	204	8.5	5.5	2.4	3.3	1.9	1.3	1.0	0.75	.40						2.72	1.47	0.9	1.5
4.....	1180	695	23	13	6.1	3.7	3.2	2.5	1.6	0.85	0.80	0.50					4.31	2.31	1.1	3.0
3.....	820	157	16	9.3	5.0	3.1	3.6	2.1	1.5	0.95	0.95	0.75					4.00	1.96	1.0	2.1
14.....			314	189	27	22	7.5	6.4	4.0	3.00							3.09	1.48	4.0	5.8
20.....					176	371	13	34	3.1	8.50	1.50	5.60					11.80	6.22	3.6	8.8
2.....			689	447	62	42	51	29	6.8	5.00	4.20	3.50					8.31	4.14	1.6	2.9
8.....			1435	2121	341	256	54	38	12	11	5.10	6.90					6.36	3.41	1.7	4.5
10.....			1718	1285	357	309	84	59	16	11	6.00	9.00					7.26	2.81	1.5	3.1
11.....			880	1496	116	171	86	39	9	8	4.00	4.00					6.27	2.77	1.5	4.1
5.....			1887	374	217	69	90	23	20	8.6	12	5.30					6.67	3.13	2.4	4.8
15.....					453	156	119	45	33	20	18	12	7.0	4.9			8.85	4.95	1.5	3.5
21.....			839	1348	101	101	160	92	4.8	5.7	2.10	2.20					7.31	4.09	1.5	2.9
6.....					453	631	167	288	28	32	18	18	5.8	5.7			11.99	6.49	1.4	3.6
9.....							208	285	65	58	19	29	7.7	7.9	2.3	2.2	7.95	3.68	2.2	7.3
7.....							1245	1217	279	177	111	74	18	15	4.3	4.0	14.21	6.40	1.6	4.0
12.....							1408	1327	391	234	85	39	13	13	5.3	5.0	13.94	7.22	5.7	10.4
13.....							1417	2556	780	829	273	365	21	67	5.0	7.0	15.15	8.21	6.1	11.8
19.....							1965	1327	851	287	250	66	40	11	9.8	3.2	12.03	5.81	2.6	3.7
17.....							3559	161	2206	48	1115	28	450	8.8	91	3.7	29.24	6.45	1.9	4.5
16*.....							14203						2515	1433	371	101	27.19	15.16	5.9	13.6

* Sample 16: 2.50 kg., 174 in, 301 across; 3.50 kg., 120 in, 74 across.

due to elimination of the pressure variable, there would be less deviation of the individual results from the average. Although the reproducibility was not obviously improved by its use, the clamping device was employed in all subsequent tests.

The Effect of the Bending Arc

Although the endurance of paper in bending through arcs of less than 180 degrees is not a common use requirement, the effect of this factor was studied on several papers by making a series of tests in which the arc was varied from 60 to 180 degrees; that is, the angle through which the strip was bent to either side of its normal position was varied from 30 to 90 degrees. The study was confined to papers of relatively low endurance, because of the excessive time consumed by tests at small arcs.

The data are presented in Table III and in Figs. 3 to 5, inclusive.

Although the degree of deviation was not calculated for all samples, there seemed to be no definite relationship between the uniformity of results and the arc of bending. The results obtained for sample 2 were as follows:

Bending Arc in Degrees	Average Endurance Double Bends		Average Per cent Deviation	
	In	Across	In	Across
60	4569	3299	20	42
90	1140	551	27	42
120	523	145	18	32
150	137	47	17	32
180	51	29	31	19

The curves of average endurance against arc of bending were so similar in shape that various other methods of plotting were tried. In general, the closest approach to linearity occurred when the log of the bending endurance was plotted against the bending arc. The across direction endurance at the smaller arcs was very high, and out of proportion to its value at the larger arcs, so that the points for any one sample did not lie in a straight line. In general, however, the relationship between the logarithm of the endurance in the machine direction and the bending arc was found to be approximately linear. The samples fell into two general groups, differing somewhat in slope, but within these groups the lines were parallel. The endurance of the bond papers, Fig. 4, seemed to increase less with decreased arc of bending than did the endurance of the group which included offset book, folding coated enamel, cover, and bristol. Since in the latter group most of the points fell close to the estimated straight lines, as seen in Fig. 3, an attempt was made to develop an equation which would satisfy the observed relationship. The fact that plotting the logarithm of the endurance against the bending arc gave a straight line can be expressed in the form of the equation

$$\log E_1 = m_1 A + b_1 \quad , \qquad (1)$$

where E_1 is the average endurance, A is the bending arc, m_1 is the constant slope of the line, and b_1 is a constant which represents the intercept of the projected line on the y-axis. These constants were determined for the machine direction of sample 5, a fairly typical case. They were:

$$m_1 = -.0163 \text{ deg.}^{-1}$$
$$b_1 = 4.84$$

If these values are substituted, equation 1 becomes

$$\log E_1 = 4.84 - 0.0163\ A. \qquad (2)$$

The logarithmic term of equation 1 can be eliminated by making the following substitutions:

Let $m_1 = \log c_1$, and
$b_1 = \log k_1$;

then

$$\log E_1 = A \log c_1 + \log k_1;$$
$$\log E_1 = \log c_1^{A} + \log k_1$$
$$\log E_1 = \log k_1 c_1^{A}; \text{ and}$$
$$E_1 = k_1 c_1^{A}; \qquad (3)$$

in which k_1 and c_1 are constants.

In the case of sample 5,

$$\log c_1 = m_1 = -0.0163; \text{ and}$$
$$c_1 = 0.963.$$
$$\log k_1 = b_1 = 4.84; \text{ and}$$
$$k_1 = 69{,}200.$$
$$\text{Therefore, } E_1 = 69{,}200\ (0.963)^{A} \qquad (4)$$

According to equation 4, when $A = 0$, $E_1 = 69{,}200$, whereas it would be expected that an infinite number of "bends" through zero arc could be made.

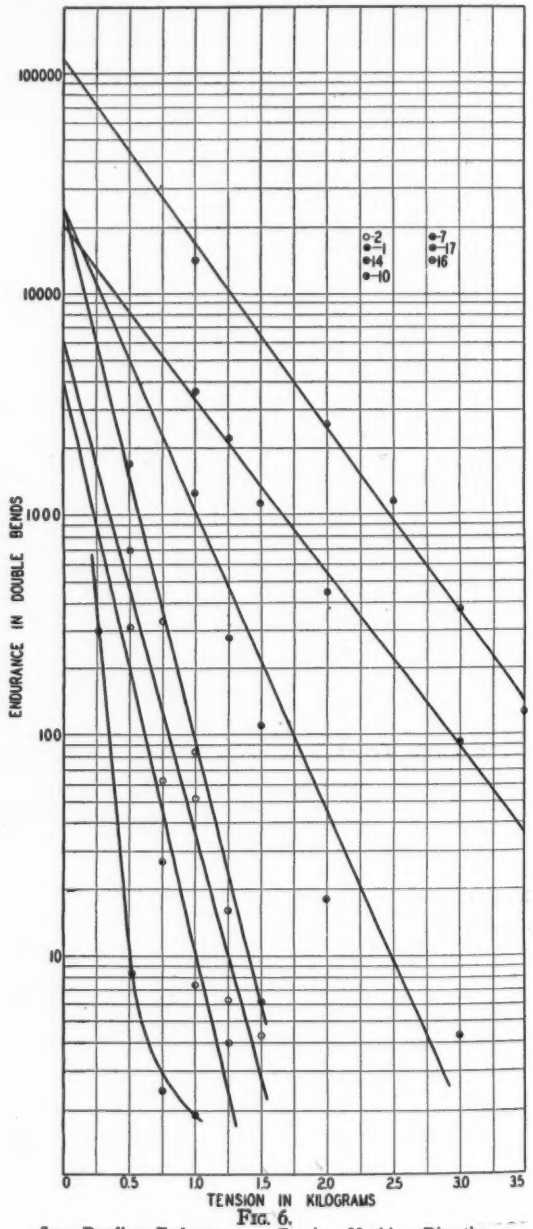


FIG. 6.
Log Bending Endurance *vs.* Tension Machine Direction

For the present, it must be considered, therefore, that equations 1 through 4, inclusive, are strictly empirical, and it cannot be predicted how well they might apply outside the range from 60 to 180 degrees.

The Effect of Tension

Several samples were tested at different tensions, using a constant arc of 180 degrees. The average results are given in Table IV. The degree to which the tensile limits of the original samples were approached may be determined with the aid of the tensile strength data. The percentage of elongation during the tensile test is included as information of incidental interest.

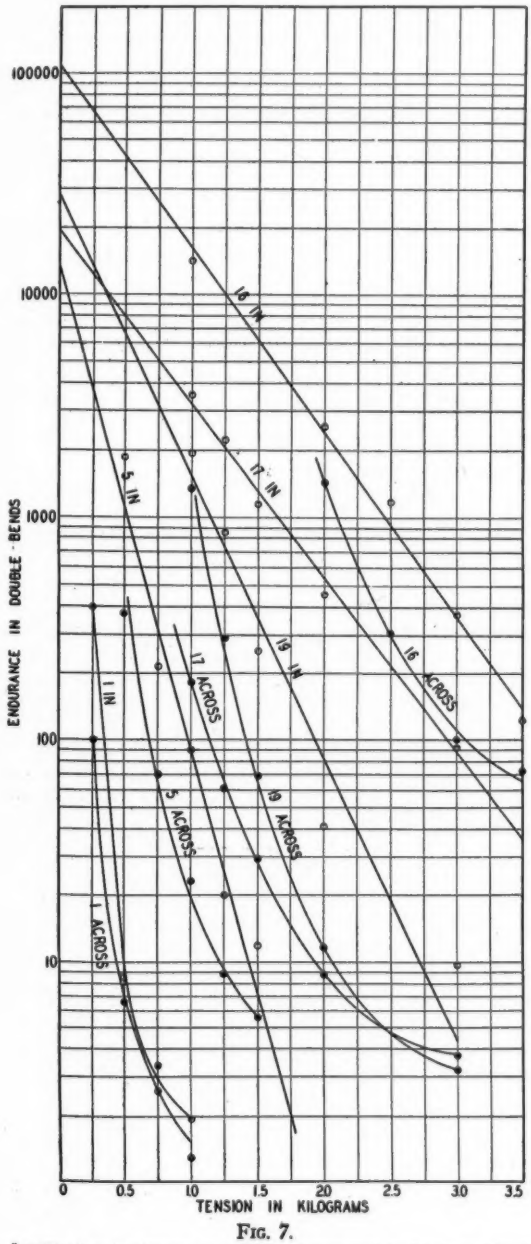


FIG. 7.

Log Bending Endurance *vs.* Tension Across and in Machine Direction

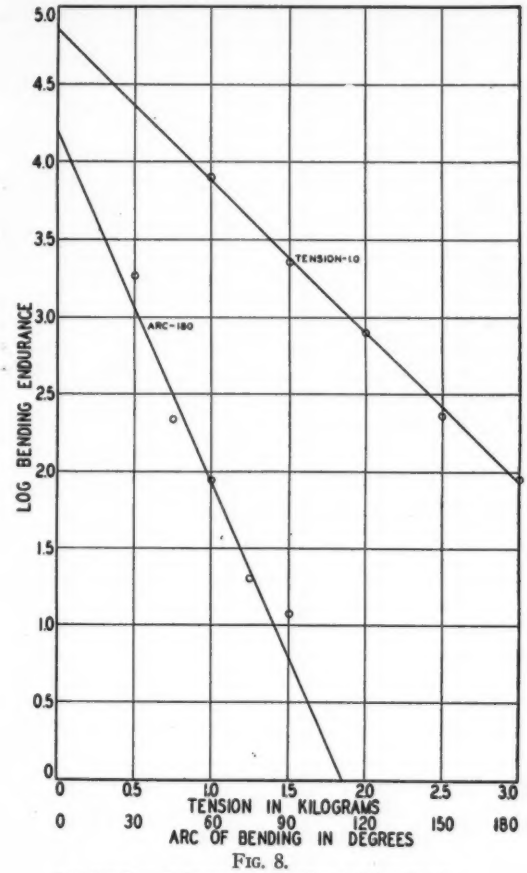


FIG. 8.

Log Bending Endurance *vs.* Tension and Arc Bending

In general, the relationship between the log of the bending endurance in the machine direction and the tension, as shown in Figs. 6 and 7, was found to be approximately linear. For samples of low endurance, however, this rule did not hold so well, and the across direction results in general departed from linearity. It may be seen that, in those cases where the relationship was not linear, the endurance seemed to decrease less rapidly as the load applied approached the tensile limits of the paper. These data were not in agreement with those of Schopper[1] and of Korn,[2] who reported that the log endurance values in the across and machine directions, when plotted against tension, gave straight lines which, by extrapolation, intersected at zero tension.

A straight line relationship between log endurance and tension may be expressed by the equation

$$\log E_2 = m_2 T + b_2, \qquad (5)$$

where E_2 is the endurance at constant arc, m_2 is the slope, T is the tension in kilograms, and b_2 is the intercept on the y-axis, which represents the endurance at zero tension. The slope and intercept were determined for the machine direction of sample 5, by means of Fig. 8. They were found to be as follows:

$$m_2 = -2.25 \text{ kg.}^{-1}$$
$$b_2 = 4.28.$$

By substitution, the equation for this sample then becomes

$$\log E_2 = -2.25T + 4.28 \qquad (6)$$

TABLE VI.—COMPARISON OF INSTRUMENTS
Average of 10 Tests

Sample No.	Endurance in Double Folds or Bends: Schopper Bending Tester, Endurance, In	Schopper Bending Tester, Endurance, Across	Schopper Bending Tester, Per cent Deviation, In	Schopper Bending Tester, Per cent Deviation, Across	Schopper Fold Tester, Endurance, In	Schopper Fold Tester, Endurance, Across	Schopper Fold Tester, Per cent Deviation, In	Schopper Fold Tester, Per cent Deviation, Across	M. I. T. Fold Tester, Endurance, In	M. I. T. Fold Tester, Endurance, Across	M. I. T. Fold Tester, Per cent Deviation, In	M. I. T. Fold Tester, Per cent Deviation, Across
1	1.9	1.3	12	34	1.7	1.2	25	27	1.9	1.1	9.5	16
4	3.2	2.5	20	20	5.0	3.8	12	8.4	3.7	3.0	11	13
3	3.6	2.1	13	8.6	2.3	1.7	18	25	1.8	1.5	36	33
2	51	29	31	19	35	18	22	26	12	16	15	25
8	54	38	37	28	123	51	43	21	45	26	30	9.6
10	84	59	29	31	421	93	15	42	183	45	41	34
11	86	39	55	44	469	150	26	26	276	61	42	33
5	90	23	22	18	53	19	16	9.1	20	9.3	19	6.0
21	160	92	32	44	369	148	31	53	114	79	14	60
6	167	288	34	51	660	446	42	43	19	28	17	26
9	208	285	20	26	728	310	17	31	216	105	23	18
7	1245	1217	14	23	4466	1494	24	44	430	138	25	26
12	1408	1327	25	31	5184	3140	12	18	2067	977	17	8.0
13	1417	2556	30	26	7093	6157	8.9	7.9	4055	3307	13	13
Sample width—mm.		15				15				15		
Speed—cycles/min.		120				135				175		
Tension—kg.		1.0				1.0				1.0		
Arc—deg.		180			approx.	360				2.70		
Radius of bend—mm.		0.01				0.25				0.39		

The Combined Effects of Arc and Tension

Considering again the equation

$$\log E_1 = m_1 A + b_1, \qquad (1)$$

the endurance b_1 at zero arc obviously should depend upon the tension applied. If the relationship

$$\log E_2 = m_2 T + b_2 \qquad (5)$$

between endurance and tension at finite arcs applies also at zero arc, then

$$b_1 = \log E_2 = m_2 T + b_0. \qquad (7)$$

Since the term b_2 in equation 5 represents the endurance at zero tension, then in equation 7 b_0 represents the endurance at zero tension and at zero arc as well.

Substituting $(m_2 T + b_0)$ for b_1, the general equation expressing endurance in terms of the arc and the tension then becomes

$$\log E = m_1 A + m_2 T + b_0. \qquad (8)$$

The constant b_0 can be evaluated for specific samples by substituting corresponding values of the other terms. For example, at 180 degree arc and one kilogram tension, sample 5 had an endurance of 90 double bends. Therefore,

$$\log 90 = -0.0163\ (180) - 2.25\ (1.00) + b_0,$$
$$\text{and } b_0 = 7.14.$$

The final equation for this sample is then

$$\log E = -0.0163A - 2.25T + 7.144. \qquad (9)$$

Actually, several corresponding known values of arc, tension, and endurance should be substituted, in order to determine an average value for b_0. However, using equation 9, the calculated values for endurance checked fairly well with the actual values in the range of conditions employed (Table V).

TABLE V.—COMPARISON OF CALCULATED AND ACTUAL VALUES FOR ENDURANCE.

Arc in Degrees	Tension in Kilograms	Endurance in Double Bends Machine Direction: Calculated	Actual
180	0.50	1175	1887
180	0.75	326	217
180	1.00	89	90
180	1.25	18	20
180	1.50	7	12
60	1.00	7230	7809
90	1.00	2630	2311
120	1.00	850	780
150	1.00	282	230
180	1.00	89	90

The closer agreement between the actual and calculated values in the series run at varying arc corresponds with the more nearly linear relationship which existed between log endurance and bending arc, as compared with the relationship between log endurance and tension.

Comparison of the Schopper Bending Tester With the Schopper and M. I. T. Folding Testers

Since this instrument can bend the paper strip through a maximum of only 90 degrees to either side of its normal position, it was desired to study the correlation of its results with those of testers, the action of which corresponds more nearly to creasing. For this purpose, the endurance values of several samples were compared, using the Schopper bending tester, the Schopper fold tester, and the M. I. T. fold tester. The conditions of each test, the average endurance in double folds or double bends and the average per cent deviation from the average of the tests are given in Table VI. Under the conditions used, the results of the bending tester and of the M. I. T. folder were in general of the same order, while those of the Schopper folder were appreciably higher. Due to the occasional departures from these trends, however, further conclusions are unwarranted. From a consideration of the bending arc alone, it would have been expected that the Schopper folder would give the lowest results. That the reverse was true must be ascribed to some difference in the type of stress which the sample encounters. The deviations were all very high, and none of the instruments appeared to be superior in this respect. It would seem that variation within the sample is by far the most important factor affecting fold results.

Finnish Paper Calendar

The 7th edition of The Finnish Timber and Paper Calendar for 1939-1940 has just been issued, under the editorship of Onni O. Ojala, editor of The Finnish Paper and Timber Journal. This directory, authorized by the various central and selling associations, gives information on the forests, economic, financial and transportation facilities of Finland. The fifth section includes an interesting review of the Finnish pulp and paper industry. A list of pulp and paper mills and their products, capitalization and list of executives and mill agents and the shipping marks of producers are included. The price of the Calendar is 12 shillings net, postage free, and copies may be ordered from The Finnish Timber and Paper Calendar 36, Helsingfors, Finland.

Review Of Paper Industry Literature

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C. for 10 cents each. Send currency, not stamps.

Raw Materials

Use of Thermocompressors for the Evaporation of Black Liquor. Harald Fridlund. Finished Paper and Timber J. 20, no. 15A:42, 44 (Aug. 15-16, 1938); B. I. P. C. 9:64.—By means of calculations carried out for a sulphate mill with a yearly output of 85,000 tons of pulp, it is shown that considerable savings in coal can be realized when a thermocompressor is installed for the evaporation of the black liquor, provided that cheap hydroelectric power is available.—C.J.W.

Tests Carried Out with Recovery Units in Alkaline Processes. Göran F. Heikel. Finished Paper and Timber J. 20, no. 15:600-602, 604, (Aug. 15, 1938); B. I. P. C. 9:55.—Comparative tests of the efficiency of the S.-S. and Tomlinson recovery units in sulphate mills were made and detailed tabulated data of the results are given. According to these studies it was found that, from a heat technological viewpoint, the efficiency of the Tomlinson system is about the same as that of a correctly installed S.-S. system.—C.J.W.

Liquid Degreasing Composition. Alton F. Curran, assignor to The Curran Corporation. U. S. pats. 2,107,287 and 2,107,288, (Feb. 8, 1938).—No. 2,107,287 Water-soluble tallöl soap is used with about 25 to 75 per cent its weight of a liquid hydrocarbon grease solvent and with an alkali metal phenolate, and may be still further diluted with hydrocarbon grease solvent while retaining its stability and homogeneity. *No. 2,107,288*—A degreasing composition is made by admixing with liquid, fatty-acid-containing, soap-forming material, such as tallöl, a substantially anhydrous organic liquid solvent such as cresylic acid containing water-soluble alkali reactive to form a water-soluble soap and in excess of the amount required for saponifying the fatty-acid-containing material, and the mixture may be diluted with a liquid hydrocarbon grease solvent of compatible nature, such as kerosene or carbon tetrachloride.—(C1. 87-5).—A.P.-C.

Sulphate Pulping Process. Daniel J. Young, assignor to Young-Whitwell Gas Process Company. U. S. pat. 2,115,835 (May 3, 1938).—In order to avoid contamination of the atmosphere with malodorous sulphur-containing gases in the production of sulphate pulp, after filling the digester practically all of the air is swept out before starting to cook. The gases drawn from the digester during the cook are substantially free from air; they are passed through a condenser, and the uncondensable gases containing the malodorous constituents are burned.—(C1.92-9).—A.P.-C.

Sulphite Process

The Physical Properties of Sulphite Liquors. Warren B. Beazley, W. Boyd Campbell and O. Maass. Can. Dept. Mines Resources, Dom. Forest Service Bull. 93. 1938. 48 pp.—A comprehensive review of the researches carried out in the Forest Products Labs. of Canada during the last 8 or 9 yrs. on the equilibria existing in sulphite liquors, and previously presented in isolated papers.—A.P.-C.

Burning Sulphur Under Pressure. Theoretical and Technically Economic Possibilities of Heat Savings and Operating Improvements. O. Brauns. Pulp Paper Mag. Can. 39: 674-679 (Sept., 1938).—Burning sulphur under pressure, with compressed air for the combustion, and cooling the hot burner gases directly with raw acid from the towers in a special auxiliary tower, also held under suitable pressure, saves enough heat to raise the temperature of the acid by 30 degs. to 40 degs. C., while at the same time the strength of the acid can be controlled. The pressure required depends on the acid desired, the sulphur consumption, and other factors, but should not exceed 30 lb. per sq. in. For a mill producing about 100 tons of sulphite per day a compressor supplying 1100 cu. ft. of "free" air at 2 atmospheres would be sufficient. The power consumption of this compressor, about 1 h.p. per ton of pulp per day, is the only extra operating expense of the system. The pressure does not increase the formation of sulphur trioxide. The final temperature depends on many factors but is always proportional to the sulphur dioxide content of the acid.—A.P.-C.

Rate of Temperature Rise in Sulphite Pulping of Western Hemlock. J. N. McGovern and C. H. Chidester. Paper Trade J. 107, No. 13: 29-32 (Sept. 29, 1938).—Increasing the rate of straight-line temperature rise to the maximum temperature resulted in a longer time at the maximum temperature but in a considerable reduction of the total digestion time. Rapid temperature rise to the maximum temperature resulted in a reduction in pulp yield of 1 per cent or less, a small reduction in the bursting and tensile strengths, and a slight increase in the tearing strength. The results indicated that considerable latitude in the rate of temperature rise is permissible in the sulphite pulping of western hemlock.—A.P.-C.

Effect of Age and Growth Rate on Sulphite Pulps from Western Hemlock. G. H. Chidester and J. N. McGovern. Paper Trade J. 107, No. 13: 24-29 (Sept. 29, 1938).—Yields of pulp from five trees of western hemlock covering a wide range in age and rate of growth, varied from 43.2 to 48.1 per cent by weight and from 10.1 to 13.3 lbs. per cu. ft. of solid wood. The yields from the old trees were generally lower than from the young trees, and decreased with increasing springwood content, increasing rate of growth, decreasing density, and decreasing cellulose content.—A.P.-C.

Sulphite Pulps from Heartwood and Sapwood of Several Growth Types of Western Hemlock. J. N. McGovern and G. H. Chidester. Paper Trade J. 107, No. 14: 34-36 (Oct. 6, 1938).—The yield of sulphite pulp from western hemlock sapwood was found to be from 3.2 to 6.7 per cent higher than from heartwood from the same tree. Sapwood pulps had in general higher tearing but slightly lower bursting and tensile strengths than heartwood pulps.—A.P.-C.

Apparatus Suitable for Digesting Wood Chips with Sulphite Liquor. Francis J. Dooley. U. S. pat. 2,121,074 (June 21, 1938).—A battery of digesters is associated with heat exchangers through which liquor from the digesters is circulated (each digester

having an adjacent heat exchanger), and gas evolved from the liquor in one digester is introduced into the circulating liquor of another digester externally of the latter. (C1.92-7).—A.P.-C.

Chemical Pulping Process. Henry Dreyfus. U. S. pat. 2,118,074 (May 24, 1938).—In the manufacture of cellulose from wood, straw, grass, etc., the materials are first treated with bisulphite solution, which preferably contains a little sulphur dioxide, at 90 degs. to 120 degs. C., under superpressure, preferably exceeding by at least 10 atmospheres the vapor pressure of the liquid, and then with dilute alkali at 90 degs. to 130 degs. C., under similar superpressures. The cellulose obtained is suitable for the manufacture of paper and of cellulose derivatives.—(C1.92-11).—A. P.-C.

The Absorption of SO_2 in Water. Chas. E. Reiley. Paper Trade J. 107, No. 11: 93-98 (Sept. 15, 1938).—Increasing gas velocity and liquor velocity (in the absorption of SO_2 in water in a tower packed with wood-lattice grids) produce an increase in rate of absorption, the former being of greater importance at the higher liquor rates and the latter being of most importance at low liquor velocities, while an increase in temperature decreases the rate of absorption. The overall absorption coefficient varies with the 1.43 power of liquor velocity, and with the 1.26, 2.11, 2.17 and 2.26 power of gas velocity at liquor velocities of 1.49, 1.99, 2.48 and 2.98 ft. per min., respectively. Information suitable for the design of absorption equipment is presented.—A.P.-C.

Sulphite Pulps from the Top, Middle and Butt Logs of Western Hemlock of Four Growth Types. J. N. McGovern and G. H. Chidester. Paper Trade J. 106, No. 23: 37-49 (June 9, 1938).—Significant differences were found in the yield and quality of the pulps obtained from top, middle and butt logs of four growth types of western hemlock, particularly with respect to the top logs. The pulp yield followed the trend of the cellulose and alpha-cellulose contents, which decreased from the butts to the tops, as did the proportion of summerwood, but appeared in no way related to the respective densities of the top, middle and butt logs. No other regular variation was noted in the physical or chemical properties of the wood samples with respect to their positions in the trees. The bursting strengths of the pulps from the top logs were slightly inferior to those from the middle and butt logs, while the tearing strengths were substantially lower in accordance with the trend toward a higher springwood content. The tensile strength increased from the butts to the tops.—A.P.-C.

Recovery of Heat and Sulphur Dioxide Gas in the Sulphite Pulp Industry with or without Heat Exchangers. C. Rosenblad. Paper Trade J. 106, No. 26: 78-81 (June 30, 1938); Paper Mill 61, No. 26: 110-112, 115 (June 25, 1938).—In the Rosenblad system the acid is concentrated to full strength in the cold by means of cooled digester relief gases, and the cold, concentrated acid is subsequently heated indirectly by means of heat liberated when the digester is relieved and blown. The merits of the system are discussed, and a description of an (unnamed) American installation of the system is given.

Comparison of Sulphite Pulps from Fast-Growth Loblolly, Shortleaf, Longleaf and Slash Pines. G. H. Chidester, J. N. McGovern and G. C. McNaughton. Tech. Assoc. Papers 21: 264-267 (June, 1938); Paper Trade J. 107, No. 4: 36-39 (July 28, 1938).—Tests on the pulping of rapid-growth loblolly, shortleaf, longleaf and slash pines showed that a variation of -0 per cent in a springwood content in any one species results in a greater difference in pulp quality than is exhibited between the different species examined. The relative springwood contents increase from the butt to the tops of all four species examined, and the density varies in a reverse fashion. All strength properties (except tear resistance) improve with increase in springwood content.—A.P.-C.

NAF Circulation Apparatus for Sulphite and Sulphate Pulp Digesters. Torsten Samson. Tech. Assoc. Papers 21: 335-342 (June, 1938); Paper Trade J. 107, No. 5: 31-38 (Aug. 4, 1938).—Theoretical considerations are given on circulation, heating and cooking, and the Schauffelberger system as constructed by Nordiska Armaturfabrikerna, Stockholm, is described and discussed. The system consists essentially in withdrawing liquor from the digester near the liquor level, passing through an indirect heater, returning the main portion of the liquor at the bottom of the digester and the remainder at the top.—A.P.-C.

Process for the Systematic Separation of the Different Constitutents of Wood. Georges Robrieux. Compt. Rend. 17 me. Congr. Chim. Ind. Paris, Sept.-Oct. 1937: 736-738.—A system is proposed for cooking wood at 105 degrees to 110 degrees C., and under a pressure of 18 to 22 kilos per sq. cm. with aqueous sulphurous acid and under such conditions that the cooking liquor is continuously regenerated and the dissolved incrustants are continuously removed from contact with the wood residue. The process yields a very pure cellulose suitable for nitrating. An apparatus for carrying it out is indicated. The digester is completely filled with the liquor, and at the top is connected to an indirect heater which extends to a certain height above the top of the digester. When the liquor passes from the digester to the heater, the sulphur dioxide is driven off, along with some of the water and passes back into the bottom of the digester, while the dissolved incrustants remain in the heater.—A.P.-C.

The Relation Between Chip Length and Uniformity of Delignification in Sulphite Pulping. Howard Morgan and Henry Philip Dixson, Jr. Tech. Assoc. Papers 21: 364-366 (June, 1938); Paper Trade J. 107, No. 7: 38-40 (Aug. 18, 1938).—Increasing the time to reach a temperature of 110 degs. C., in the cooking schedule from 1.5 to 4 hrs. reduces the difference in the degree of delignification between short and long chips to some extent but not sufficiently to be satisfactory. The use of high pressure from the start of the cook instead of following the normal pressure rise does reduce these differences to a reasonably suitable value and in addition gives an economic advantage of reducing cooking time. Non-uniformities in degree of delignification obtained in different parts of the chips are markedly improved by the use of a high initial pressure which is maintained throughout the cooking cycle.—A.P.-C.

Recent Investigations in the Science of Sulphite Cooking. Erik Hägglund Wochbl. Papierfabr. 69, No. 30: 624-26 (July 23, 1938).—The influence of entrapped air in the chips to the penetration of the cooking liquor, the diffusion of the ligno sulphonic acid, the influence of different sizes of chips on the yield and strength properties, the influence of the treatment of the logs with warm water during barking on the strength properties; were the topics discussed and results tabulated.—J.F.O.

Imports of Paper and Paper Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

NEW YORK IMPORTS

WEEK ENDING JULY 29, 1939

SUMMARY

Cigarette paper.....467 cs.
Wall paper .....2 trusses
Wall board .....2,619 bdls.
Paper hangings.....4 bls., 1 cs.
Newsprint .....3,215 rolls
Printing paper.....1 bls., 2 cs.
Wrapping paper .....36 rolls, 18 bls., 3 cs.
Filter paper .....20 cs.
Filter compound .....20 bls.
Drawing paper.....1 cs.
Tracing cloth .....10 cs.
Surface coated paper.....64 cs.
Photo paper .....8 cs.
Decalcomania paper .....10 cs.
Decalcomanias .....5 cs.
Tissue paper .....48 cs.
Card board .....1 cs.
Paper tubes .....136 cs.
Miscellaneous paper .....618 rolls, 73 bls., 154 cs.

CIGARETTE PAPER

Champagne Paper Corp., *Champlain,* Havre, 464 cs.
De Mauduit Paper Corp., *Champlain,* Havre, 3 cs.

WALL PAPER

Mr. Lubatty, *Carinthia,* Liverpool, 2 trusses.

WALL BOARD

Treetex Corp., *Rydboholm,* Gothenburg, 2,619 bdls.

PAPER HANGINGS

W. H. S. Lloyd & Co., Inc., *American Merchant,* London, 4 bls., 1 cs.

NEWSPRINT

——, *California,* Glasgow, 146 rolls.
H. G. Craig Co., Inc., *Newscarrier,* Donnacona, 394 rolls.
International Paper Co., *International #1,* Gatineau, 384 rolls.
H. G. Craig Co., Inc., *G. D. D.,* Donnacona, 250 rolls.
Perkins Goodwin & Co., *Vestvard,* Sundsvall, 258 rolls.
International Paper Co, *G. T. D.,* Gatineau, 321 rolls.
H. G. Craig Co., Inc., *A. C. D.,* Donnacona, 258 rolls.
Wilkinson Bros., & Co., Inc., *Rydboholm,* Kotka, 50 rolls.
Jay Madden Corp., *Rydbohlm,* Kotka, 161 rolls.
Boston Paper Board Co., *Rydboholm,* Gothenburg, 99 rolls.
Parsons & Whittemore, Inc., *Rydboholm,* Gothenburg, 155 rolls.
Jay Madden Corp., *New York,* Finland, 494 rolls.
H. G. Craig Co., Inc., *Donpaco,* Donnacona, 245 rolls.

PRINTING PAPER

Japan Paper Co., *American Merchant,* London, 1 ble.
S. H. Pomerance, *American Merchant,* London, 2 cs.

WRAPPING PAPER

Blauvelt Wiley Paper Manfg. Co., *Gripsholm,* Gothenburg, 36 rolls.
R. Wilson Paper Corp., *Alex van Opstal,* Antwerp, 2 cs.
F. C. Strype, *Alex van Opstal,* Antwerp, 1 cs.
Blauvelt Wiley Paper Manfg. Co., *Rydboholm,* Gothenburg, 18 bls.

FILTER PAPER

E. H. Sargent & Co., *Gripsholm,* Gothenburg, 1 cs.
H. Reeve Angel & Co., Inc., *American Merchant,* London, 19 cs.

FILTER COMPOUND

H. Reifenberg, *New York,* Hamburg, 20 bls.

DRAWING PAPER

H. Reeve Angel & Co., Inc., *American Merchant,* London, 1 cs.

TRACING CLOTH

Keuffel & Esser Co., *American Shipper,* Manchester, 10 cs.

SURFACE COATED PAPER

Gevaert Co., of America, *Black Gull,* Antwerp, 61 cs.
Dingelstedt & Co., *Volendam,* Rotterdam, 3 cs.

PHOTO PAPER

J. J. Gavin & Co., *Mauretania,* Southampton, 8 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., *American Shipper,* Liverpool, 5 cs. (duplex), 5 cs. (simplex).

DECALCOMANIAS

General Motors Overseas Operations, Inc., *Europa,* Bremen, 5 cs.

TISSUE PAPER

Y. Yabuki & Co., *Wamabiko Maru,* Kobe, 4 cs.
Van Oppen & Co., *Exochorda,* Genoa, 44 cs., (uncoated).

CARD BOARD

F. W. Woolworth, *Champlain,* Havre, 1 cs.

PAPER TUBES

——, *New York,* Hamburg, 136 cs.

MISCELLANEOUS PAPER

The Borregaard Co., Inc., *Gripsholm,* Gothenburg, 73 bls., 618 rolls.
H. Reeve Angel & Co., Inc., *American Merchant,* London, 1 cs.
Japan Paper Co., *Yamabiko Maru,* Kobe, 55 cs.
Japan Paper Co., *Laura Maersk,* Kobe, 88 cs.
Hormann Schutte & Co., Inc., *Exochorda,* Genoa, 10 cs.

RAGS, BAGGINGS, ETC.

B. D. Kaplan Co., Inc., *Black Hawk,* Rotterdam, 3 bls. bag scrap.
Chase National Bank, *Carinthia,* Liverpool, 125 bls. bagging.
——, *Carinthia,* Liverpool, 44 bls. waste string, 80 bls. rags, 3 bls. scrap cloth.
Manufacturers Trust Co., *Carinthia,* Liverpool, 71 bls. rags, 37 bls. thread waste.
National City Bank, *Gripsholm,* Gothenburg, 8 bls. rags.
——, *American Merchant,* London, 126 bls. bagging, 40 bls. old bags.
——, *Gertrude,* Tel-a-viv, 6 bls. rags.
——, *Gertrude,* Alexandria, 213 bls. bagging.
R. & V. Miller, Inc., *Rydboholm,* Gothenburg, 11 bls. rags.
——, *Exochorda,* Haifa, 87 bls. rags.
W. Steck & Co., *Exochorda,* Alexandria, 136 bls. rags.
——, *Exochorda,* Alexandria, 13 bls. rags.
——, *New York,* Hamburg, 66 bls. rags.

GLUE STOCK, ETC.

——, *Saturnia,* Trieste, 150 bags boneglue sheets, 350 bags ground hideglue.

OLD ROPE

National City Bank, *California,* Glasgow, 51 coils.
W. Steck & Co., *Gitano,* Hull, 46 coils.

CASEIN

——, *Argentina,* Buenos Ayres, 250 bags.

WOOD PULP

Gottesman & Co., Inc., *Rydboholm,* Gothenburg, 450 bls. dry sulphate.
Cellulose Sales Co., Inc., *Vestvard,* Soderhamn, 150 bls. dry sulphite, 30 tons.
Bulkley Dunton Pulp Co., Inc., *Vestvard,* ——, 550 bls. dry sulphite, 110 tons; 1,325 bls. dry sulphate, 265 tons; 750 bls. kraft sulphate, 125 tons.
Cellulose Sales Co., Inc., *Vestvard,* Sundsvall, 150 bls. kraft sulphate, 25 tons; 2,000 bls. dry sulphite, 380 tons.
J. Andersen & Co., *Vestvard,* Sundsvall, 2,400 bls. kraft sulphate, 400 tons.
Mead Sales Co., Inc., *Vestvard,* Sundsvall, 500 bls. dry sulphite, 100 tons.

———, *Vestvard,* Hernosand, 1,560 bls. dry sulphate, 260 tons.
Brown Bros., Harriman & Co., *Vestvard,* Hernosand, 3,000 bls. dry sulphate, 532 tons; 2,520 bls. dry sulphite, 510 tons; 2,200 bls. wet sulphite 342 tons.
Pulp Sales Corp., *Rydboholm,* Viipuri, 3,344 bls. sulphite.
M. Sone, *Astra,* Gdynia, 1,947 bls. wood pulp.
M. Sone, *Astra,* Riga, 1,524 bls. wood pulp.

WOOD PULP BOARDS

H. Fuchs & Son, *Gripsholm,* Gothenburg, 25 crates.
Wilkinson Bros., & Co., Inc., *Gripsholm,* Gothenburg, 20 rolls.
———, *Rydboholm,* Viipuri, 377 rolls.
———, *Rydboholm,* Kotka, 49 rolls.
Standard Fibre Specialty Corp., *Rydboholm,* Gothenburg, 64 bls.

ALBANY IMPORTS

WEEK ENDING JULY 29, 1939

Cellulose Sales Co., Inc., *Vestvard,* Sundsvall, 150 bls. kraft sulphate, 25 tons; 1,800 bls. dry sulphite, 395 tons.
Perkins Goodwin & Co., *Vestvard,* Sundsvall, 2,670 bls. kraft sulphate, 445 tons.
Bulkley Dunton Pulp Co., Inc., *Vestvard,* ———, 2,080 bls. dry sulphite, 416 tons.
Cellulose Sales Co., Inc., *Vestvard,* Soderhamn, 1,125 bls. dry sulphite, 225 tons.
Perkins Goodwin & Co., *Vestvard,* Soderhamn, 825 bls. dry sulphate, 165 tons.
Brown Bros., Harriman & Co., *Vestvard,* Hernosand, 330 bls. dry sulphite, 55 tons.
E. M. Sergeant Pulp & Chemical Co., *Vestvard,* Hernosand, 300 bls. dry sulphate, 50 tons.
Bank of N. Y. Trust Co., *Vestvard,* Hernosand, 4,080 bls. dry sulphate, 680 tons.

BOSTON IMPORTS

WEEK ENDING JULY 29, 1939

D. C. Andrews & Co., *Black Gull,* Antwerp, 17 bls. cotton waste.
———, *Black Gull,* Antwerp, 12 cs. wrapping paper.
International Purchasing Co., *Black Gull,* Antwerp, 60 bls. old rope.
American Express Co., *Black Gull,* Antwerp, 293 rolls wrapping paper, 6 cs. stencil paper.
J. W. Gerry Co., Inc., *Yamabiko Maru,* Yokohama, 13 cs. wall paper.
Atkinson Haserick & Co., *Exochorda,* Genoa, 2 cs. paper.
M. Sone, *Hjelmaren,* Stockholm, 300 bls. wood pulp.

NEW LONDON IMPORTS

WEEK ENDING JULY 29, 1939

Gottesman & Co., Inc., *Schwanheim,* Sweden, 2,500 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING JULY 29, 1939

Gottesman & Co., Inc., *Rydboholm,* Gothenburg, 254 bls. sulphite, 508 bls. sulphate.
F. Whitaker & Co., *Black Hawk,* Rotterdam, 13 bls. bag scrap.
———, *Black Hawk,* Antwerp, 37 bls. wrapping paper.
Dee Paper Co., *Black Hawk,* Antwerp, 54 rolls, 31 bls. wrapping paper.
Brown Bros., Harriman & Co., *Vestvard,* Hernosand, 180 bls. dry sulphite, 30 tons; 1,100 bls. wet sulphite, 171 tons.
Pagel Horton & Co., Inc., *Vestvard,* Sundsvall, 210 bls. kraft sulphate, 35 tons.
Cellulose Sales Co., Inc., *Vestvard,* Sundsvall, 210 bls. kraft sulphate, 35 tons; 150 bls. dry sulphite, 30 tons.
Atterbury Bros., Inc., *Vestvard,* Sundsvall, 600 bls. dry wood pulp, 100 tons.
Mead Sales Co., Inc., *Vestvard,* Sundsvall, 1,650 bls. dry sulphite, 275 tons.
Nolan Bowmall & Co., Inc., *Vestvard,* Sundsvall, 82 rolls newsprint.
Salwen Paper Co., *Rydboholm,* Gothenburg, 13 bls. wood pulp boards.
———, *Rydboholm,* Gothenburg, 798 rolls, 41 bdls. paper.
Pulp Sales Corp., *Rydboholm,* Helsingfors, 160 bls. bleached sulphite.
Pulp Sales Corp., *Rydboholm,* Viipuri, 310 bls. sulphite, 250 bls. bleached sulphate.
Paper House of Penna., *Rydboholm,* Kotka, 60 rolls newsprint.
J. W. Hampton, Jr. & Co., *Rydboholm,* Kotka, 82 rolls newsprint.
Wilkinson Bros., & Co., Inc., *Rydboholm,* Kotka, 122 rolls newsprint.

CAMDEN IMPORTS

WEEK ENDING JULY 29, 1939

———, Vestvard, Hernosand, 3,000 bls. dry sulphate, 500 tons.

WILMINGTON IMPORTS

WEEK ENDING JULY 29, 1939

Pulp Sales Corp., *Rydboholm,* Viipuri, 4,995 bls. sulphite.
Jay Madden Corp., *Rydboholm,* Kotka, 266 rolls newsprint.

BALTIMORE IMPORTS

WEEK ENDING JULY 29, 1939

Gottesman & Co., Inc., *Schwanheim,* Sweden, 690 bls. wood pulp.
Wilkinson Bros., & Co., Inc., *Rydboholm,* Kotka, 199 rolls newsprint.
Whitaker Paper Co., *Rydboholm,* Kotka, 95 rolls newsprint.
Jay Madden Corp., *Rydboholm,* Kotka, 811 rolls newsprint.
Nolan Bowmall & Co., Inc., *Rydboholm,* Gothenburg, 86 rolls newsprint.
Perkins Goodwin & Co., *Rydboholm,* Gothenburg, 328 bls. sulphate.
M. Sone, *Rydboholm,* Gothenburg, 438 bls. wood pulp.
Bulkley Dunton Pulp Co., Inc., *Rydboholm,* ———, 508 bls. sulphate.
M. Sone, *Kersten Miles,* Sundsvall, 3,900 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING JULY 29, 1939

Gottesman & Co., Inc., *Schwanheim,* Sweden, 11,900 bls. wood pulp.

Eastern Corporation Improvements

Following closely upon the recent reorganization of the Eastern Corporation, comes news of an appropriation of several hundred thousand dollars for improvements at the company's South Brewer plant.

Featuring Eastern's mill improvement program will be the installation of an entirely new chlorination process in the pulp-making division. This important change is designed to produce a better color and a better strength in the company's pulp, which benefits will naturally improve the quality of their papers, including the popular Atlantic lines.

Other changes in and about the paper mill proper are also expected to bring Eastern's manufacturing department to the highest level of efficiency in its history.

The entire organization looks forward with a great degree of enthusiasm to the future, and towards maintaining the company's long-standing reputation as a leader in the sulphite paper-making field.

B. M. Thomas Leaves Container Corp.

Benjamin M. Thomas has resigned from the Container Corporation of America and may be reached at 411 Gate Lane, Chestnut Hill, Philadelphia, Pa. Since 1930, Mr. Thomas has been in charge of operations at the Manayunk, Pa. division of the company. This plant produces about 500 tons daily of box board of all kinds in addition to containers and folding cartons.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, August 2, 1939.

The prospect for continued improvement in industry and trade is indicated in the current pick-up in business which was heralded by the substantial improvement in July. Reports from manufacturers' representatives, jobbers, and general paper merchants, reflect this improvement, despite the fact that the first week in August is generally considered a period of comparatively quiet. The index of general business activity stood at 90.1 per cent for the week ended July 22, compared with 80.9 per cent for the corresponding period last year.

Paper production of 196 mills for the week ended July 22 was estimated at 78.3 per cent, compared with 80.6 per cent for the previous week, and with 76.3 per cent for the corresponding period last year. Paper board production for the week ended July 22 was 70.0 per cent, compared with 65.0 per cent for the like period last year.

The newsprint market reflects little change for the current week. According to the latest reports, consumption of newsprint in June was 23,370 tons larger than in June last year. Mill stocks was reported by one authoritative source as 4,552 tons larger at the end of June, 1939, compared with June, 1938.

Demand for many varieties of paper in the lower quality and medium quality lines, is reported a little improved this week. The price situation is generally viewed as unsatisfactory in the trade and the current level is considered too low in comparison with the costs of doing business. A more substantial increase in sales volume, created by increased consumer demand, is expected to effect a more satisfactory adjustment of prices. Paper board production and sales are reported as holding up well and prospects for the future in this division of the paper industry are good.

Prices on all grades of paper and paper products are relatively firm and no important changes have been reported for the current week.

Mechanical Pulp

The mechanical pulp market continues to reflect the seasonal lull which is a normal condition at this period of the year. Consumption continues to be reported as substantially higher than at this date last year. Prices are unchanged.

Chemical Pulp

Demand for chemical pulp is reported as seasonally quiet, with tonnage considerably under that of the spring months. Prices of unbleached sulphite continue firm, while kraft pulp continues rather weak, which condition is expected to continue in the immediate future. Consumption for the first half of this year is about 18 per cent higher than in the same period last year. Reports in some quarters of the trade indicate that manufacturers of imported pulps are likely to have rather "hard sledding" this year. Quotations on good grades of unbleached sulphite pulp are expected to stiffen with the improvement in demand generally looked for during the fall months.

Old Rope and Bagging

Reports continue to indicate that supplies of old rope are limited and mill buying steady. These factors reflect a firm market and while affording the foundation for an expected increase in price by the trade, prices at this date remain unchanged, with No. 1 domestic Manila rope currently quoted at from 2.75 to 3.00. Trading in old bagging continues limited, with a small reduction in prices on bright bagging this week, which is currently quoted at from 1.50 to 1.60.

Rags

Mill buying of new white rags is reported as continuing in moderate volume, with colored grades in limited demand this week. Prices are firm at prevailing market quotations and no important changes have occurred to date.

Old Waste Paper

The only important change in the old waste paper market for this week was the upward revision in the price of old corrugated boxes, which are currently quoted at from 3.25 to 3.50. This grade is reported in a strong market position, and so is strictly folded news, and No. 1 mixed paper, quotations of which are unchanged at prevailing quotations.

Twine

Demand for twine is about equal to trade expectations, with no important changes in prices reported on any grade of hard or soft fiber twine.

M. F. Parsons Goes With Celotex Co.

At a recent meeting of the board of directors of the Celotex Corporation, Chicago, Ill., Mauran F. Parsons was elected vice-president in charge of the Louisiana Operations with headquarters in Marrero, La., where the main plants are located.

Mr. Parsons joined the Celotex Corporation in 1920 as general superintendent of operations, and later was made assistant to the president, after which he became general manager of Louisiana operations where he remained until his present appointment.

Previous to his connection with the Celotex Corporation, Mr. Parsons followed the newsprint and fiber industry in many manufacturing capacities, and was associated with the Great Northern Paper Company, the Minnesota-Ontario Paper Company and its insulation Division, as well as other paper manufacturing companies.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, August 2, 1939.

BLANC FIXE—Quotations on blanc fixe continue firm and conform to prevailing market prices. The pulp is quoted at from $42.50 to $45 per ton, in bulk; the powder is quoted at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER—Prices on bleaching powder continue firm and unchanged at prevailing market quotations. Bleaching powder is currently quoted at from $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The demand for casein is reported as good for the current week and prices continue firm. Standard domestic casein, 20-30 mesh, is quoted at from 11 to 11½ cents per pound; 80-100 mesh, at from 11½ to 12 cents per pound. All prices in bags, car lot quantities.

CAUSTIC SODA—Quotations on caustic soda remain unchanged at prevailing market levels. Solid caustic soda is currently quoted at from $2.10 to $2.30 per 100 pounds; flake and ground at from $2.50 to $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Prices on china clay continue firm and conform to prevailing market quotation. Imported clay is quoted at from $13 to $25 per ton, ship side. Domestic filler clay is currently offered at from $6.50 to $12 per ton; coating clay at from $11 to $22 per ton, at mines.

CHLORINE—Quotations on chlorine continue firm and unchanged at prevailing market prices. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market continues firm under a relative good demand. "G" gum rosin is currently quoted at $4.95; "FF" wood rosin at $4.95, per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent gum rosin is offered at $2.77 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Prices on salt cake continue firm and unchanged at prevailing market quotations. Prices range at from $12 to $13.50 per ton; chrome salt cake at from $11 to $12 per ton, f.o.b., shipping point. Imported salt cake is offered at from $14.50 to $15 per ton. Gulf or Atlantic Seaboard, on dock.

SODA ASH—Prices on soda ash continue firm and conform to prevailing market quotations. Current prices on soda ash in car lots, at works, per 100 pounds, are as follows: in bulk, $.90; in bags, $1.05; and in barrels, $1.25.

STARCH—The demand for corn starch is reported good and the current price unchanged at this date. Globe pearl is currently quoted at $2.50 per 100 pounds; special paper starch at $2.60 per 100 pounds. All prices in bags, car lot quantities, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina continue firm and unchanged at prevailing market levels. The commercial grades are offered at $1.15; iron free at $1.30, per 100 pounds, in bags, car lot quantities, f.o.b., works.

SULPHUR—Prices on sulphur continue firm and the demand is currently reported as good. Quotations are unchanged at prevailing market levels. Annual contracts are quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are offered at $19 per ton.

TALC—Quotations on talc remain firm and conform to prevailing market prices. Domestic talc is currently quoted at from $15 to $18 per ton, Eastern mines. Imported talc is offered at from $20 to $40 per ton, on dock.

Market Quotations

Paper

(Delivered New York)

News, per ton—

Roll, contract	$50.00	@	—
Sheets	58.00	@	—

Kraft—per cwt.—Delivered Zone A

No. 1 Northern	$4.75	@	$5.25
Superstandard	4.12½	@	4.62½
Northern Standard Wrapping	4.00	@	—
Standard Wrapping	3.50	@	—

Tissues—Per Ream—Carlots

White No. 1	$0.82½	@	—
White No. 1 M. G.	.80	@	—
White No. 1½	.67½	@	—
White No. 2	.60	@	—
Anti-Tarnish M. G.	.65	@	—
Colored	.77½	@	—
Kraft	.65	@	—
Manila	.60	@	—
Unbl. Toilet, 1 M.	2.65	@	—
Bleached Toilet	5.26	@	—

Paper Towels—Per Case

Unbleached, Jr.	$1.75	@	—
Bleached Jr.	3.10	@	—

Manila—per cwt.—C. l. f. a.

No. 1 Jute	7.75	@	9.75
No. 1 Manila Wrapping, 35 lb.	5.00	@	—
No. 2 Manila Wrapping, 35 lb.	4.75	@	—

Boards, per ton—

News	30.00	@	32.50
Chip	30.00	@	32.50
Sgl. Mla. Ll. Chip	42.50	@	—
Jute Lined Chip	42.50	@	45.00
White Pat. Coated	55.00	@	57.50
Kraft Liners	45.00	@	—
Binders Boards	71.00	@	77.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	31.05@ 36.50	32.20@ 37.75
85% Rag	.....	29.90@ 35.00
75% Rag	23.60@ 27.75	24.75@ 29.00
65% Rag	.....	21.65@ 26.25
50% Rag	17.55@ 21.50	18.70@ 22.75
25% Rag	14.65@ 17.75	15.80@ 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$8.60@$10.50	$9.75@$12.00
No. 2	7.70@ 9.50	8.90@ 10.75
No. 3	6.75@ 8.25	7.90@ 10.00
No. 4	7.00@ 8.50	8.20@ 10.00

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$11.30@$12.75
No. 2 Glossy Coated	9.70@ 11.00
No. 3 Glossy Coated	8.60@ 10.00
No. 4 Glossy Coated	8.05@ 9.25
No. 1 Antique (watermarked)	8.05@ 9.25
No. 2 Offset	7.45@ 8.50
A Grade E. F.	7.20@ 8.25
A Grade S. & S. C.	7.45@ 8.50
B Grade E. F.	6.65@ 7.75
B Grade S. & S. C.	6.90@ 8.00
C Grade E. F.	6.40@ 7.50
C Grade S. & S. C.	6.65@ 7.75
D Grade E. F.	6.10@ 7.00
D Grade S. & S. C.	6.35@ 7.25

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—

Moist	22.50	@	24.00
Dry	22.50	@	24.00

(Delivered)

No. 1 Domestic and Canadian	29.00	@	33.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—

Prime Bleached Sulphite	2.25	@	2.75

Prime Qualities—

Easy-Bleaching Sulphite	1.90	@	2.00
Strong Unbleached Sulphite	1.70	@	2.00

(On Dock, Atlantic Ports)

Kraft Bleached	2.50	@	2.75
Kraft Light & Strong	1.50	@	1.60
Kraft No. 1	1.40	@	1.50
Kraft No. 2	1.25	@	1.30

(F. o. b. Pulp Mill)

Kraft Domestic	1.25	@	1.75

(Delivered)

Soda Bleached	2.55	@	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—

New White, No. 1	6.90	@	7.00
Silesias No. 1	4.50	@	4.75
New Unbleached	6.75	@	7.00
Blue Overall	4.90	@	5.00
Fancy	1.75	@	2.00
Washables	1.50	@	1.60
Mixed Khaki Cuttings	2.25	@	2.50
O. D. Khaki Cuttings	3.25	@	3.40

Old Rags

White, No. 1—

Repacked	2.90	@	3.15
Miscellaneous	2.10	@	2.25

White, No. 2—

Repacked	1.50	@	1.60
Miscellaneous	1.25	@	1.40

Thirds and Blues—

Repacked	1.30	@	1.40
Miscellaneous	1.15	@	1.20

Roofing Rags—

No. 1	.90		1.00
No. 2	.67½	@	.77½
No. 3 (bagging)	.55	@	.65
No. 4	.60	@	.65
No. 5A	.60	@	.65

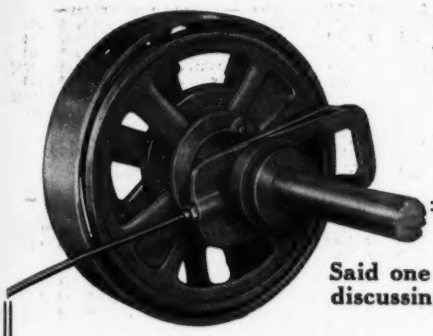
Foreign Rags

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	@	2.20
New Light Silesias	5.50	@	5.75
Light Flannelettes	5.50	@	5.75
New White Cuttings	7.00	@	7.50
New Light Oxford	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.50
No. 2 White Linens	6.50	@	7.50
No. 3 White Linens	4.50	@	—



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"We run the machine at any speed desired. Start it slow, increase speed as required, and let it operate on long runs with clutch slipping. It does the work better than we ever expected," says this executive.

We will supply name and address if desired. The clutch will solve your troubles just as it did for the above.

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No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	@	4.75
No. 2 White Cotton.	3.25	@	3.75
No. 3 White Cotton.	2.50	@	3.00
No. 4 White Cotton.	1.90	@	2.20
Extra Light Prints..	2.00	@	2.40
Ord. Light Prints...	1.75	@	2.15
Med. Light Prints...	1.55	@	1.95
Dutch Blue Cottons.	2.25	@	2.50
French Blue Linens..	3.00	@	—
Checks and Blues...	2.00	@	—
Linsey Garments....	1.90	@	2.00
Dark Cottons.....	1.50	@	1.60
Old Shopperies.....	1.30	@	1.45
New Shopperies.....	1.45	@	1.50
French Blues.....	2.25	@	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.60	@	1.75
Domestic	1.50	@	1.60
Wool Tares, light...	1.60	@	1.70
Wool Tares, heavy..	1.80	@	1.90
Bright Bagging.....	1.50	@	1.60
Manila Rope—			
Foreign 2.60		@	2.75
Domestic	2.75	@	3.00
Jute Threads.....	3.00	@	3.25
Sisal Strings	1.50	@	1.60
Mixed Strings....	.55	@	.60

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.30	@	2.40
Ordinary Hard White No. 1....	1.90	@	2.00
Soft White No. 1..	1.60	@	1.75
Soft White Extra..	2.25	@	2.40
Flat Stock—			
Stitchless	.80	@	.85
Overissue Mag	.70	@	.75
Solid Flat Book...	.55	@	.60
Crumbled No. 1....	.40	@	.45
Ledger Stock White.	1.05	@	1.15
Ledger Stock Colored	.60	@	.70
New B. B. Chips....	.15	@	.20
Manila—			
New Env. Cut....	1.40	@	1.50
New Cuttings.....	1.00	@	1.20
Old Kraft Machine— Compressed bales..	.60	@	.65
News—			
No. 1 White News	1.25	@	1.30
Strictly Overissue.	.40	@	.45
Strictly Folded....	.32½	@	.37½
No. 1 Mixed Paper..	.22½	@	.27½

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.12¾	@	.14¼
White Hemp.....	.13¾	@	.15¾
Fine Polished—			
Fine India.....	.16	@	.18
Unpolished—			
Box	.09½	@	—
Paper Makers.....	.09½	@	.10½
Tube Rope.....	.10¼	@	.12½
Wall Paper.....	.10¾	@	.12½
Wrapping	.12	@	—
Soft Fiber Rope....	.12	@	.14
Cotton	.16	@	.19
(Hard Fiber)			
Medium Java.....	.11	lb	.17
Mex. Sisal.....	.10	@	.16
Manila	.16	@	.23

Domestic	2.65	@	2.75
Sisal Rope	1.75	@	1.85
Mixed Rope.....	.45	@	.50
Transmission Rope..	1.80	@	1.90
Soft Jute Rope	2.00	@	2.25
Jute Carpet Threads.	.75	@	.90
Gunny Bagging—			
Foreign	1.50	@	1.65
Domestic	1.40	@	1.50
Bleachery Burlap....	2.50	@	2.70
Gunny Bagging.....	1.45	@	1.60
Scrap Burlap—			
Foreign	1.35	@	1.40
Domestic	1.25	@	1.40
Scrap Sisal.....	1.55	@	1.60
Scrap Sisal for Shredding	1.75	@	1.80
Wool Tares, Heavy..	1.40	@	1.50
New Burlap Cuttings	2.00	@	2.25
Aust. Wool Pouches.	1.60	@	1.90
Heavy Baling Bagging	1.50	@	1.60
Paper Mill Bagging..	.85	@	1.00
No. 2 Bagging.....	.45	@	.50

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints...	.03¼	@	.03½
New White No. 1....	.0675	@	.0690
New Light Flannelettes	.05	@	—
Silesias No. 1.....	.04	@	.04¼
New Black Silesias..	.03½	@	.03¾
Soft Unbleached.....	6.50	@	7.00
Blue Cheviots.....	.05	@	.05¼
Fancy	.02	@	.02½
Washable	.02	@	.02½
Cottons—According to grades—			
Blue Overalls.....	.04¼	@	.05
New Black, soft...	.03¾	@	.04
Khaki Cuttings.....	.02½	@	.03
O. D. Khaki.....	.03	@	.03¼
Corduroy	.02¼	@	.03
New Canvas.....	.06¾	@	.07¼
B. V. D. Cuttings...	.06¼	@	.07

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04¼	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues.....	1.75	@	2.00
Old Blue Overalls...	1.50	@	—
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings.....	3.90	@	4.00
Roofing Stock—			
No. 1.....	1.00	@	1.10
No. 2.....	.65	@	.70
No. 3.....	.45	@	.50

Foreign Rags

(F. o. b. Boston)

Dark Cottons.....	.90	@	1.05
Dutch Blues.....	2.65	@	2.75
New Checks and Blues	2.85	@	3.00
Old Fustians.....	2.25	@	2.50
Old Linsey Garments.	2.10	@	2.25
New Silesias.....	3.75	@	4.00

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phil.)

Shirt Cuttings—			
New White, No. 1.	.06	@	.06½
New White, No. 2.	.03½	@	.04
Light Silesias.....	.03½	@	.04
Silesias, No. 1....	—	@	.04½
Black Silesias, soft	—	@	.03
New Unbleached..	.05½	@	.06
Washable, No. 1..	.01½	@	.01¾
Blue Overall.....	.04	@	.04½
Cottons—According to grades—			
Washable No. 2...	.01	@	.01¾
New Blue.....	.01	@	.01¼
Fancy Percales...	—	@	.02½
New Black Soft...	.03	@	.03½
New Light Seconds	—	@	.04½
New Dark Seconds	.50	@	.75
Khaki Cuttings—			
No. 1 O. D.....	.03	@	.03½
No. 2 Mixed.....	.02	@	.02½
Corduroy	—	@	.02
New Canvas.....	.05	@	.05½
New Black Mixed.	.02½	@	.02¾

Domestic Rags (Old)

White No. 1—			
Repacked	2.75	@	3.00
Miscellaneous	2.00	@	2.25
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1.....	.90	@	1.10
Domestic No. 1...	.80	@	.90
Domestic No. 2...	.60	@	.65
Roofing Bagging...	.40	@	.45

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	—	@	1.50
Domestic	1.50	@	1.60
Manila Rope.....	—	@	3.00
Sisal Rope.....	1.50	@	1.75
Mixed Rope.....	.75	@	1.00
Scrap—			
No. 1.....	—	@	1.50
No. 2.....	.80	@	.90
Wool Tares, heavy..	3.25	@	3.50
Mixed Strings.....	.45	@	.50
No. 1 New Light Burlap	2.50	@	3.00
New Burlap Cuttings	1.75	@	2.00

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 2 Hard White	2.25	@	2.30
No. 2 Hard White	1.90	@	2.00
No. 1 Soft White.	1.75	@	1.80
No. 2 Soft White.	1.30	@	1.40
No. 1 Mixed.....	.65	@	.75
Solid Ledger Stock..	1.45	@	1.50
Ledger Stock, white.	1.10	@	1.15
Ledger Stock, colored	.75	@	.80
No. 1 Books, heavy..	.60	@	.65
Manila Cuttings....	1.45	@	1.50
Print Manila.....	.45	@	.50
Container Manila...	.35	@	.40
Kraft Paper.....	.65	@	.70
No. 1 Mixed Paper..	.25	@	.30
Straw Board Chip...	.25	@	.30
Binders Board Chip.	.25	@	.30
Corrugated Board...	.50	@	.55
Overissue News.....	.45	@	.50
Old Newspapers.....	.35	@	.40

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.25	@	2.50
No. 1 Soft White.	1.85	@	2.15
No. 2 Mixed.....	.75	@	.80
Solid Ledger Books..	1.30	@	—
Overissue Ledger Stock	1.30	@	1.50
Mixed Ledgers.....	.85	@	.90
No. 1 Books, heavy..	.70	@	—
No. 1 Books, light..	.65	@	.75
Crumpled Stitchless Book Stock.....	.55	@	.65
Manila Env. Cuttings	1.70	@	1.85
Manila Envelope Cuttings, Extra Quality	2.00	@	2.10
No. 1 Old Manila...	.65	@	.70
White Blank News..	1.30	@	1.40
No. 1 Kraft.....	.70	@	—
Mixed Papers.....	.17½	@	.19½
Print Manila.....	.45	@	.55
Container Manilas..	.27½	@	—
Old Newspapers.....	.27½	@	.32½
Paper Wool Strings..	.60	@	.65
Overissue News.....	.45	@	.50
Box Board Chips....	.20	@	.25
Corrugated Boxes....	.30	@	.32½
Kraft corrugated boxes	.60	@	.65
Screening Wrappers.	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.50	@	2.65

CHICAGO

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings....	1.80	@	1.90
No. 1 Hard White.	1.70	@	1.80
No. 1 Soft White..	1.50	@	—
Ledger & Writings..	.75	@	.80
Solid Books.....	.45	@	.50
Blanks	.90	@	—
Krafts	.45	@	.50
New Kraft Cuts.....	1.10	@	—
Manila Env. Cuts...	Nominal		
Ex. No. 1 Manila...	Nominal		
Print Manila	Nominal		
Overissue News.....	.35	@	—
Old Newspapers—			
No. 1 Folded News	.25	@	.30
No. 1 Mixed Paper	.15	@	.20
Roofing Stocks—			
No. 1.....	1.00	@	1.05
No. 2.....	.85	@	—

TORONTO

Paper

Bonds

Direct mill shipment in two-ton lots

No. 1 White $35.50		@	—
No. 1 Tints	36.50	@	—
No. 2 White	25.50	@	—
No. 2 Tints	26.50	@	—
No. 2 Golden Rod..	27.50	@	—
No. 3 White	21.00	@	—
No. 4 White	15.00	@	—
No. 4 Tints	16.00	@	—
No. 4 Golden Rod...	17.00	@	—

Direct mill shipment in three-ton lots

No. 5 White $10.50		@	—
No. 5 Tints	11.50	@	—
No. 5 Golden Rod..	12.00	@	—
No. 6 White	9.00	@	—
No. 6 Tints	9.50	@	—
No. 6 Golden Rod..	11.00	@	—
No. 7 White	8.00	@	—
No. 7 Tints	8.50	@	—
No. 7 Golden Rod..	10.00	@	—
Book—			
No. 1 M. F.	$7.00	@	—
No. 2 M. F.	6.50	@	—
No. 3 M. F.	5.35	@	—
No. 1 S. C.	7.25	@	—
No. 2 S. C.	6.75	@	—
No. 3 S. C.	5.85	@	—

Coated Book & Litho

Ton Lots (resale)

No. 1 .....$12.00		@	—
No. 2	10.25	@	—
No. 3	8.90	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown.....	4.85	@	5.25
White Wrap.....	4.00	@	—
"B" Manila.....	4.90	@	6.15
No. 1 Manila.....	5.50	@	6.90
Fiber	5.50	@	6.90
Kraft No. 2.....	5.50	@	6.90

(F. o. b. Cars, Toronto)

News per ton—			
Rolls (contract)..)46.00		@	—
Sheets 54.00		@	—

Pulp

Ground wood.....$29.00		@	—
Unbleached sulphite.	44.00	@	—
Bleached sulphite...	54.00	@	—
Kraft	50.00	@	—
Soda	54.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut...	2.00	@	—
Soft White.....	1.75	@	—
White Blk. News..	1.25	@	1.10
Book and Ledger—			
Flat Magazine and Book Stock (old)	.70	@	—
Light and Crumpled Book Stock.	.60	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut...	1.35	@	—
Printed Manilas...	.45	@	—
Kraft	.95	@	—
News and Scrap—			
Strictly Overissue..	.50	@	—
Strictly Folded....	.45	@	—
No. 1 Mixed Paper..	.30	@	—

Domestic Rags

(Price to Mills, f.o.b. Toronto)

No. 1 White Shirt Cuttings	.06½	@	.06¾
Light Prints.....	.03	@	.03¼